



amateur radio

Vol. 34, No. 10
OCTOBER
1966

Registered at G.P.O., Melbourne, for
transmission by post as a periodical

25c

NEW VALVES

1A3	50c	5U4GB	\$1.45	6CW4	\$3.00	717	75c	866	\$2.50
1A5	50c	5V4G5	\$1.75	6F7	50c	7N7	75c	954	50c
1A7GT	\$2.60	5Y3	\$1.38	6G6	75c	7W7	50c	955	50c
1C7	50c	5Y4	75c	6GB8	\$2.60	12A5	50c	956	50c
1D4	75c	5Z3	\$1.75	6H6 Metal	50c	12A6	50c	956A	50c
1D8	75c	6A3	75c	6J5GT	\$1.00	12A7T	75c	1616	\$1.50
1F5	\$1.00	6A6	75c	6J6	\$1.00	12A7T	\$1.50	1623	50c
1H5	75c	6AB7	\$1.00	6K6	\$1.00	12A7A	\$1.50	1626	50c
1K5	50c	6AC7	75c	6K7	50c	12A8	50c	1629	50c
1K7	50c	6AG5	50c	6K8GT	\$1.25	12B6E	75c	1636	75c
1L4	50c	6AG7	\$1.25	6K8 Metal	\$2.00	12C8	50c	1763	\$2.00
1L5	\$1.00	6A13	75c	6L7	50c	12D5	50c	1821	50c
1L6	50c	6AK5	\$1.50	6N7	50c	12SA7GT	\$1.00	9004	50c
1M4	50c	6AL5	\$1.40	6R7	75c	12SC7	50c	EA50	40c
1M5	50c	6AM5	\$1.50	6S7	75c	12SGT	75c	EC25	50c
1P5	50c	6AM6	\$1.00	6SA7	75c	12SK7	50c	EC33	\$2.00
1Q3	50c	6AN7A	\$1.65	6SC7	75c	12SN7	75c	EC35	75c
1S2	\$1.75	6AS7GT	\$2.00	6SP7	75c	12SR7	50c	EP96	\$1.05
1S5	\$1.60	6AU6	\$1.45	6SH7	50c	16A5	\$1.70	EV91	50c
1T4	50c	6AUBA	\$2.40	6SJ7	\$1.25	16A5	\$2.10	KT90	\$3.00
1U4	\$1.60	6AV6	\$1.40	6SK7GT	\$2.00	25L6	\$1.00	Q9E03/12	\$4.75
1U5	\$1.60	6B6	75c	6SL7GT	\$1.25	25Z6	\$1.00	Q9E04/7	\$2.50
2A5	75c	6BA6	\$1.55	6SN7GT	\$1.00	35L6GT	\$1.00	RL18	75c
2A7	75c	6BB6	\$1.55	6SQ7GT	\$2.60	19	50c	U141	\$1.00
2D21	\$1.20	6BL8	\$1.80	6SS7	75c	30	50c	UR33	50c
2E26	\$2.50	6BM8	\$1.55	6U3	\$1.35	47	50c	VR33	50c
2X2	50c	6BR6	\$1.55	6V7	75c	70	50c	VR102	50c
3A4	\$2.20	6BR8	\$1.45	6UR	\$1.70	58	50c	VR135	50c
3A5	\$1.00	6BX6	\$1.45	6V4	\$1.14	80	\$1.70	VR136	30c
3A5S	\$1.50	6BY7	\$1.55	6V6GT	\$1.75	717A	75c	VR137	50c
3A4	\$1.00	6C26	\$1.60	6X4	\$1.00	807	\$3.75	VR150	\$1.25
3V4	\$1.50	6C6	50c	6X5	\$1.45	808	\$1.00	VT78 (6D6)	40c
5A4	\$2.60	6C7	\$1.00	6Y7	\$1.45	808	\$1.00	VT127	30c
5A5A	\$1.45	6CG7	\$1.55	7C3	50c	820B	\$1.50	VT501	75c
5BRGY	\$3.75	6CH6	\$2.35	7C7	50c	832A	\$6.00	VU39A	50c
5T4	\$1.75	6CM3	\$2.25	7E6	50c	837	\$2.00		

ROTARY TRANSFORMER MOTORS

Type X21810, new. Input 110 volts, output 370 volts at 70 mA. Size 1 1/2 in. long, diam. 2 1/2 in.

Price \$4.50

CABLES

- 2-core, shielded, new, 20c yard.
- 12-core, shielded, new, 40c yard.
- 3-core, plastic covered, new, 20c yard.
- 4-core, plastic covered, new, 25c yard.
- 6-core, plastic covered, new, 30c yard.

TRANSISTOR TRANSFORMERS

Output type, 300 ohms c.t., 15 ohms, \$1 each. Driver type, 3000 ohms c.t., 1330 ohms, \$1 each.

CRYSTALS

27.240 Mc., new, \$3.
26.785 Mc., new, \$3.
Frequencies available: 4052, 5600, 4735, 5205, 3780, 4840 and 5297 Kc. Three for \$2.

BALUN TOROID

Type 355C. Impedance ratio 2:1:1. 52 ohms unbalanced to 45 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable tx output impedance. Lux terminals. \$3.30.

TRANSISTOR RECEIVER KITS

Kits of parts for the Audio and B.I.O. Sections of the 80 Mx Transistor Receiver described in August "A.R." are now available. Audio Kit \$13.50, B.I.O. Kit \$15.50. Kits will be available for subsequent sections as they are published.

TRANSISTORS AND DIODES

AC123	10/-	9/6	90c	GC169	19/6	\$1.95
AC126	10/-	9/6	90c	GC170/AF115N	19/6	\$1.95
AC127	10/-	9/6	90c	GC171/AF114N	19/6	\$1.95
AF114N/OC171	10/-	9/6	90c	GC172/AF114N	19/6	\$1.95
AF115N/OC170	10/-	9/6	90c	GC173/AF114N	19/6	\$1.95
AF116N	10/-	9/6	90c	GC174/AF114N	19/6	\$1.95
AF117N	10/-	9/6	90c	GC175/AF114N	19/6	\$1.95
AF118	22/-	9/6	90c	BY100/OA214	18/6	\$1.80
BC107	11/-	9/6	90c	OA79	18/6	\$1.80
BC108	10/-	9/6	90c	OA80	3/6	30c
BC109	14/-	9/6	90c	OA81	3/6	30c
OC26	25/-	9/6	90c	OA90	3/6	30c
OC35/AT1138A	25/-	9/6	90c	OA91	3/6	30c
OC44N	11/-	9/6	90c	OA95	3/6	30c
OC45N	11/-	9/6	90c	OA200	18/6	75c
OC70	12/-	9/6	90c	OA210	18/6	75c
OC71/2N215	12/-	9/6	90c	HR25	8/6	85c
	7/6 or 3 for \$1			OA211, 10A82	18/6	\$1.80
	7/6 or 3 for \$2			1N3491 50 p.p.t.	18/6	\$1.80
OC72	13/6	\$1.35		OA212	18/6	75c
OC74N	10/-	9/6	90c			
OC78	13/6	\$1.35				

CHASSIS PUNCH SET

Hozen K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.60

ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- (\$3.00).

DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1 1/4 in., depth 1 1/2 in., width 1 1/2 in. 10/- (\$1) each, or 17/6 (\$1.75) per pair.

RECORDING TAPES

Well known maker. Brand new in cartons.

150 ft. on 3 inch reel, Acetate	60c
225 ft. " " " " " "	75c
300 ft. " " " " " "	\$1.00
450 ft. " " " " " "	\$1.50
600 ft. " " " " " "	\$2.00
750 ft. " " " " " "	\$2.50
900 ft. " " " " " "	\$3.00
1050 ft. " " " " " "	\$3.50
1200 ft. " " " " " "	\$4.00
1350 ft. " " " " " "	\$4.50
1500 ft. " " " " " "	\$5.00
1650 ft. " " " " " "	\$5.50
1800 ft. " " " " " "	\$6.00
2000 ft. " " " " " "	\$6.50
2200 ft. " " " " " "	\$7.00
2400 ft. " " " " " "	\$7.50
2600 ft. " " " " " "	\$8.00
2800 ft. " " " " " "	\$8.50
3000 ft. " " " " " "	\$9.00
3200 ft. " " " " " "	\$9.50
3400 ft. " " " " " "	\$10.00
3600 ft. " " " " " "	\$10.50
Empty Tape Reels
3 inch	25c	
3 1/4 "	35c	
3 1/2 "	35c	
5 "	40c	
5 1/2 "	40c	
7 "	50c	
7 1/2 "	50c	
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"AMATEUR RADIO"

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OCTOBER 1966

Vol. 34, No. 10

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Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

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FEDERAL COMMENT

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9th JAMBOREE-ON-THE-AIR

On the week-end of 22nd and 23rd October Amateur Transmitting Societies all over the world will be co-operating with the Boy Scouts World Bureau for the 9th Jamboree-on-the-Air. Since the inauguration of this event the Wireless Institute of Australia supported it, calling on all Amateurs interested in the activities of the youth of our nation to "open their shack doors."

The entire electronic industry—television, broadcasting, manufacturing, servicing and communications generally—are well aware of the growing need for skilled electronic people if Australia, with its increasing role in international affairs, is to keep technically abreast of the northern hemisphere.

The expedient way is to engender early interest by young people and like all other Amateur activities, the Jamboree-on-the-Air is an appropriate means. On the occasion of this event the Wireless Institute of Australia again asks all Amateurs to interest themselves in local Scout organisations and make arrangements for Scout groups to visit the shack while local, interstate and overseas contacts are in progress. This will not only add to the knowledge of Scouts as signallers but will also ignite that little flame in many to enquire further into the art of radio communications and electronics in general.

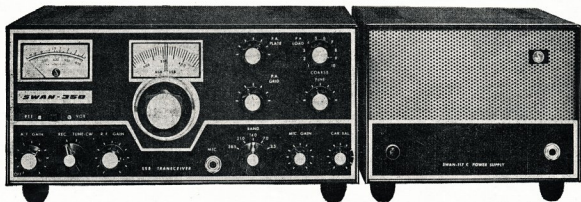
And with the Scouts in your shack you have an admirable opportunity to discuss with them the value of the W.I.A. sponsored Youth Radio Scheme whereby the boys can start off on the right foot to understand radio with a sound basic radio course. If you are unaware of the details of Y.R.C. training, then contact the W.I.A. in your State and you will find the Institute only too willing to assist you with all the information you want. Don't forget the date! October 22 and 23! Your co-operation will assist Australian youth and give YOU a lot of pleasure.

G. MAXWELL HULL, VK3ZS, Federal President, W.I.A.

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PORTABLE 240V. A.C. POWER SUPPLY

B. A. WHITE,* VK5YB

THE problem of producing the much desired 240v. a.c. for the portable station can be overcome with the aid of a small 4-cycle petrol engine and a $\frac{1}{2}$ h.p. single phase capacitor start induction motor.

The equipment detailed above could be quite expensive if bought via the normal channels, however there are many disposals sources releasing $\frac{1}{2}$ h.p. motors for as low as \$2 and the job of reconditioning an old washing machine petrol engine is not beyond the average ability or pocket. It was thus that I economically secured my power plant components.

Be sure that the electric motor has good bearings, and that the "run" winding is OK. The "start" winding and capacitor have no effect in this reverse operation, likewise the starter switch mechanism on the rotor. Check to ensure that the motor is designed to run at 1,445 r.p.m. (or thereabouts) when on the 40-50 c.p.s. supply as this also determines the speed at which the engine must drive the motor to develop 50 c.p.s. as a generator. Higher speed types do turn up and will do the same job provided they are driven at the correct speed.

The petrol engine needs to be in good condition to maintain a constant speed to ensure even cyclage of the generator. I disconnected the "bottle type" governor and fitted a hand throttle to overcome governor surge and consequent variation of cyclage.

Having constructed a suitable base plate from scrap timber, a belt drive was fitted using a car fan belt and two random pulleys approx. 2 $\frac{1}{2}$ " diam. each. The engine seemed to develop suitable power and stability at 1,500 r.p.m., but this may need experimentation with various engines—adjusting the pulley ratios to finally rotate the "generator" at approximately 1,500 r.p.m.

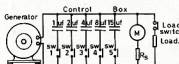
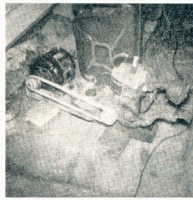


FIG. 1. GENERATOR CONTROL CIRCUIT.

The "generator" has to receive some initial excitation whilst rotating and this may be done by the use of a capacitor block and switches to vary the capacity across the output. A cheap moving iron 0-300 volt meter was set in the output stage to monitor the excitation process. Disposals oil-filled capacitors were used in the set up, but don't forget to parallel each one with a 250K bleeder or else they could give you quite a shock when left switched off.

To excite the generator, the 15 μ F. SW5 is closed and starting with SW1 the rest are closed until the meter shows a sudden kick. This occurs only if the particular "generator" has sufficient residual magnetism to produce a low level a.c. voltage to charge the capacitor bank. No load must be applied during this excitation process or it will effectively dampen the small charges produced by the residual properties of the "generator". Once excitation is achieved the voltage will possibly be too high. Reduce the excitation capacity by switching out the lower capacities until about 250-260 volts is obtained. Switch in the load and more capacity if the load drops the voltage too much. Some generators have to receive a d.c. flash to excite them.

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The cyclage may be checked with the aid of the synchronous record player connected to the home-brew a.c. source, a stroboscopic disc, used to check the gram speeds, and a globe connected to the mains supply. Increase or decrease the engine speed until reasonable synchronisation is obtained. Alternatively, the pocket rev. counter is all that was available on the farm and served satisfactorily.

There are two disadvantages with this system:

- (a) Voltage variation with a change of load.
- (b) Slight beat due to slip or natural magnetic resonances against the exciting capacity.

The first (a) can be overcome by the use of dummy loads or the use of a common power supply for the transmitter and receiver used in portable work, and thus refrain from change of load.

There is little to be done with (b) as it depends on the design of the motor particularly in relation to the material of which it is made. This effect is noticed by slight fluctuation in a low

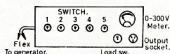


FIG. 2. CONTROL BOX LAYOUT.

powered filament lamp and possibly slight tonation of a b.f.o. against a resolved s.s.b. signal.

This power supply has delivered up to 250 watts and has been used for t.v. on the farm, powering a 100w. soldering iron, lighting and always to operate the receiver the rig here, as well as the radiogram.

The direction of rotation of the "generator" is immaterial and a fuse system is unnecessary as overload cancels excitation and the whole circuit neutralises despite the continued rotation.

Higher h.p. motors are equally as effective, but appear to require larger capacitor for excitation—they, too, would be capable of more output with a larger petrol engine.

The two-stroke motor was rejected due to continued variation of revs., noise and difficulties of handling, especially starting. The only suppression required for Amateur use was the plug suppressor on the 4-cycle engine. The generator is purely inductive and no variable connections are used to necessitate brush suppression.

The credit of this mode of power should be handed to Rollo VK6BO, who has been using this system on his portable gear and caravan for some time. I merely copied his idea and experimented to further the application.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

PHONE

VK3AHO	309/321	VK4HR	247/263
VK5MS	209/320	VK3JZ	246/261
VK3AB	206/312	VK7TL	237/241
VK6MK	263/310	VK2AE	223/227
VK6RU	262/315	VK2APK	217/220
VK4FJ	273/290	VK3AAK	215/219

New Member:
VK2MR 190/100

C.W.

VK3KB	315/335	VK3EO	272/283
VK2AE	291/313	VK3AIQ	267/279
VK3CX	290/311	VK3NC	266/266
VK3QL	288/303	VK3ARX	261/269
VK4FJ	284/306	VK6RU	250/271
VK2AGH	275/288	VK3XB	243/256

New Member:
VK2PQ 164/165

Amateurs:

VK2APK	239/246	VK3AX	146/154
VK3TL	232/235		

OPEN

VK2AE	305/329	VK3VN	275/290
VK2AGH	303/321	VK3ARX	270/278
VK6RU	280/321	VK4HR	270/282
VK6MK	265/312	VK3NC	267/267
VK4FJ	291/313	VK3TL	256/260
VK2ACX	276/309	VK2APK	255/263

SERIES PHASED ARRAY FOR 14 Mc.

WAL SALMON,* VK2SA

WITH the gradual return to more favourable propagation conditions more Amateurs are utilising the frequencies of 14 Mc. and above. Whilst many possess excellent transmitting and receiving equipment, simple wire dipoles have been, in the main, the only effective antennae for most Hams living in suburban areas.

However, on reading the mail on most of the frequencies, discussions on antennae seem to be increasing in proportion to the rate of increase in sunspot activity. The problem of the acquisition of an efficient antenna can be solved by the installation of high towers and the construction of Quads or Yagis, or dipping deep into your pocket and letting someone else do the job for you.

It would appear that this antenna has not been successfully adopted for Amateur work, due to feed and phasing difficulties and reference to various articles on the subject has amplified this thought.

The basic theory of an antenna of this type originates in the fact that parallel elements spaced one-quarter wavelength apart and fed with equal currents 90 degrees out of phase will have a directional pattern. The maximum radiation is in the direction from the element in which the current leads to the element in which the current lags. In the opposite direction the fields from the elements cancel.

Thought was then given to the construction of an experimental Series Phased Array, and in assessing the problem of suitably feeding the ele-

ments. The greater the separation, the higher the impedance. With this theory in mind it was thought that a centre-loaded tapped coil resonated element would be suitable.

Three half wave elements were then constructed, the loading coil (see photo) consisting of 12 turns of 14 gauge enamel wound on plastic conduit $1\frac{1}{2}$ in. in diameter. The total length of each half wave element when resonated at 14.1 Mc. was 20 ft. 6 inches. It will be immediately apparent that this is a very convenient

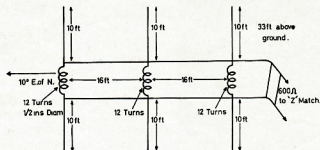


Fig. 1.—14 Mc. Array. (Coil diam. should read $1\frac{1}{2}$ inches.)

The writer has given considerable thought to the problem and has acquired the habit of collecting data over the years on antennae and antenna heights, and a clear picture has emerged. It would seem that the best DX signals have their origin in an antenna height of a least 60 to 70 feet and one is amazed at the information obtained from some of our American friends. Yagi antennae at 70 or 80 feet are commonplace. One Amateur was using a 6 element Yagi at 100 feet, another a four-element Quad at 70 feet. All this adds up to the fact that if you have a fat purse, you can put out a fat signal.

With the idea of trying to get something for nothing, the writer embarked on a trial and error scheme of testing various types of vertical wire antennae, some with directors or reflectors, over the past 12 months. Some showed great promise on W and European DX signals but could never come close to matching the Yagi and Quad.

Quite recently the writer came across an article by Colin A. Mackenzie, VK3ACM, entitled the "Series Phased Array" (reference "Amateur Radio," February, 1959). As the article states, the antenna was known as the Marconi-Franklin Series Phased Aerial and is specifically designed for end-fire propagation.

ments, consideration was given to incorporating the Delta match system. It is well known that the impedance presented between any two points symmetrically placed with respect to the centre of a half wave antenna will depend on the distance between

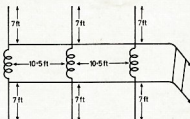


Fig. 2.—Suggestion for 21 Mc.

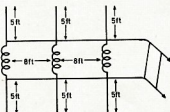
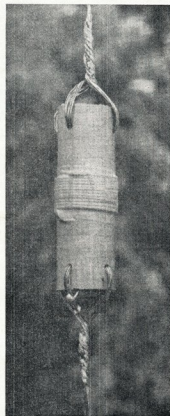


Fig. 3.—Suggestion for 28 Mc.



length to handle either as a vertical or horizontal radiator. The first experimental antenna was fed with 600 ohm open wire line from the transmitter through a "Z" match unit, the feeders being tapped directly across the centre loading coil of the first element. The interconnecting phasing stubs between the elements consisted of 75 ohm tapped across three turns of the element loading coils. In order to save space and time I will merely add that the s.w.r. went haywire and the antenna was a flop.

The co-ax. phasing stubs were then removed and 600 ohm open wire stubs tapped directly across the coils were

* 77 Flora St., Kirrawee, N.S.W.

substituted, and we were in business with the antenna firing about 10 degrees east of North, this being the most suitable direction due to the layout of masts at this location. The s.w.r. was 1.3 to 1 at 14,250 Mc.

Seven-stranded copper earth wire is used in the construction of the elements which are spaced 16 feet apart, the total length of the array being 32 feet. The antenna hangs in a semi-vertical plane from a horizontal wire broken with insulators about 33 feet high. You have no doubt been wondering about results. In the brief period the antenna has been in operation reports have been received from Canada, United States and Alaska ranging from S5 to S9 plus 40 db, and in its evaluation I can only comment that I am quite satisfied that the antenna will match in strength many antennae of a more complicated nature. I might mention that the antenna was constructed and erected in about four hours.

One unknown question raised in VK3ACM's article centres around the detuning effects when the antenna is pieced together and raised. Tests were carried out at VK2SA with two of the centre-loaded dipoles, both being separately resonated at 14 Mc. When spaced from 2 inches to 2 feet the dipoles resonated at approximately 15 Mc. When spaced at eight feet to resonant frequency was 14.15 Mc.

I can see many angles for development, such as variation in element length, associated with centre-loading coil size and an increase in the number of elements to provide more gain in the favoured direction and the adoption of the antenna to higher frequencies. In this connection reference might be made to Figs. 2 and 3 for

21 Mc. and 28 Mc. antennae. The only unknown data is the centre-loading coil size which can be easily ascertained by the use of the station g.d.o. before the elements are connected to the feed line.

However, the proof of the pudding is in the eating and I conclude this article by referring to the original story with particular emphasis on the concluding words "so who is willing to carry on from here."

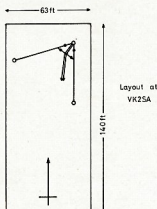


Fig. 4.

LATER VERSION

Recently I have put something up in the air which is really fantastic. Figs. 4 and 5 give full details of the array, the forward dipole being bent at an angle of about 80 deg, and the reflector dipole is almost straight. Fifty-nine plus reports from the U.S. and Alaska are pouring in.

SERIES PHASED CORNER ANTENNA

AT VK2SA

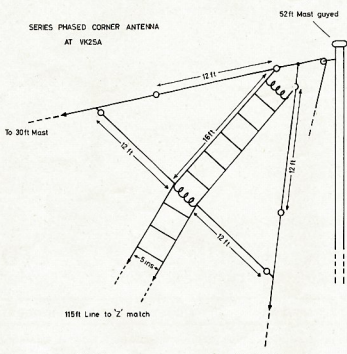


Fig. 5.

To 30 ft Mast

The dipole coils were wound on 1/2 in. plastic conduit and consist of 17 turns each, the turns being pushed in or out so that the dipole will resonate at 14 Mc. before connection to the feeders. The coils were then doped and wound with plastic tape.

The antenna is fed with 115 feet of open wire line spaced 5 inches, the spreaders being used, "Biro" pencils. The s.w.r. is 1.4 to 1 and the coupling device to the final is the English "Z" match coupler.

At present I am working on another "corner" antenna for Europe.



Technical Correspondence—

Transistor Amplifier Design

Editor "A.R.," Dear Sir,

I would like to draw your attention to an article by Mr. R. L. Harrison in the September issue of "A.R." There are several points that are wrong in the article, as well as several that I feel could be very misleading to the people who are likely to use the article. As I feel that mine will not be the only letter to condemn the correctness of the article, I will not give a large amount of detail, but merely point out parts that are wrong. They are:—

1. The choice for V_{cc} (one should consult the manufacturer's data for maximum ratings).

2. The choice of I_c (some silicon transistors have their highest I_{RE} just below 2 mA.); silicon transistors can usually be operated with a very low I_e .

3. The equation $R_c = V_{cc} \div I_c$ does not follow from the single fact that $V_{ce} = V_{cc} \div 3$, (it only follows if $V_{RE} = V_{cc} \div 3$ also).

4. The equation—

$$C_s = \frac{(\beta_0 + 1) \times 10^6}{2 \pi f_1 \left(R_{in} + \frac{R_B R_C}{R_B + R_C} \right)}$$

is wrong. Its departure from the true equation is more, I feel, than could be attributed to a printer's error.

5. The assumption that R_{in} of the following stage = 500 ohms for germanium, or 1000 ohms for silicon, transistors, is again quite wrong, especially from what Mr. Harrison has said about the choice of I_c .

6. The statement that the input impedance of an OC71 will be close to 300 ohms is, as for point 5, quite wrong.

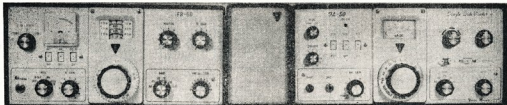
7. Mr. Harrison's philosophy for designing the lower cut-off frequency f_1 is 1 feel very misleading and deserves clarification.

Finally, I do agree with Mr. Harrison on one point, he does appear to be confused about transistor amplifier design.

I hope these points may be of some use in assisting Mr. Harrison to rethink his subject. If clarifications on any of the points I have made is needed, please contact me.

—W. Metzenthien, VK3ZOF.

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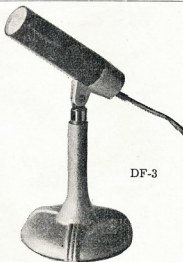
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TRANSISTOR AMPLIFIER DESIGN

R. L. HARRISON,* VK3ZRY

PART TWO

LOW level r.f. and i.f. amplifiers are very familiar items to most of us. Valve circuits have been pretty well standardised—and, to a point, so have transistors. This article was written to introduce design techniques that can be used by Amateurs. It is not necessarily an engineering approach. No complicated maths. is involved but that which is included is no more complicated than Ohm's Law. An alternative graph is provided but can only be used under limited circumstances as explained later.

The design is set out in a step by step method again as this is most easily understood and followed. Coil design can be difficult and involve calculus, so a rule of thumb procedure has been outlined to enable transistor matching and coupling to the circuits. To obtain characteristics such as selectivity (narrow or broad) and coupled circuits with a desired amount of coupling is left to the constructor. These are basic characteristics of tuned circuits and to achieve a desired result the constructor should obtain a good text book or else buy manufactured coils to give desired results. Very successful home-brew results can be obtained from miniature ferrite pot-core assemblies and these are suggested in the text. It is advisable to follow manufacturers data supplied with the assemblies for best results.

The first circuit to be discussed is a common emitter amplifier. One circuit for germanium and one for silicon transistors is given in Fig. 1.

Now there are two applications of these circuits requiring separate considerations. The circuits can be used for an i.f. amplifier or an r.f. amplifier and will be treated in that order.

I.F. AMPLIFIERS

From the circuits in Fig. 1 it is obvious that germanium transistors may require unilateralisation (neutralisation) to cancel the high internal feedback in the transistor itself. The external feedback in Fig. 1a is provided by R_1 and C_1 . The silicon transistor in Fig. 1b does not require these components as internal feedback is inherently low.

Here is the design method suitable for either silicon or germanium transistors.

1. Select a suitable transistor. The α -cutoff frequency (f_{α} , f_{max} or whatever they call it) should be five to ten times the operating frequency at the least.

2. Determine the d.c. operating conditions and find the values of R_1 , R_2 , R_3 and R_4 , using the method outlined in Part 1 of this article for a low level audio amplifier.

3. Determine C_1 , C_2 and C_3 from the graph or the following equation:—

$$C \text{ (}\mu\text{F)} = \frac{10^6}{2 \pi f R_x}$$

where C = by-pass capacitor in μF .
 f = frequency of operation.
 R_x = resistor to be by-passed, in ohms.
 $\pi = 3.1416$.

In the case of the base bias network, for finding the value of C_1 , the resistance to be by-passed is the parallel combination of R_1 and R_2 , or R_3 , where

$$R_x = \frac{R_1 \times R_2}{R_1 + R_2}$$

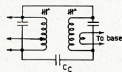
Two curves are given, one for 455 kc. and one for 1600 kc., as these are two commonly used frequencies. If a frequency higher than 1600 kc. is selected then values of by-pass capacitor can be determined as for 1600 kc.; they will be more effective by-passes!

4. Designing the transformers T_1 and T_2 . This task is best left to the engineer for optimum design and ready made coils are available, use these if applicable. If you wish to roll your own, here are a few hints:—

- (a) Use a ferrite pot core assembly, e.g. Ducon type Q2 or Neosid assembly type A2 or B1. Use manufacturer's data guides for best results.

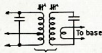
- (b) For germanium transistors, the collector tap should be near the centre of the coil. For silicon transistors the collector tap should be about two-thirds down from hot end of coil.

- (c) For germanium transistors the base coupling link should be about one-sixth of the total turns on the tuned winding. For silicon transistors, base coupling link should be one-twentieth to one-thirtieth of total tuned winding turns.



Two single assemblies
e.g. Ducon Q2 or Neosid A2

FIG. 2 (a)



Double assembly
e.g. Neosid B1 side
by side assembly

FIG. 2 (b)

(d) To obtain narrow or wide band-pass characteristics, double tuned transformers (Fig. 2) should be used, but a sweep generator and c.r.o., or a signal generator plus much patience, is needed to align for best results.

To roll your own double tuned assemblies, couple two single tuned assemblies as in Fig. 2a, or use a double assembly as in Fig. 2b, and rely on mutual coupling internally. Refer to manufacturer's data for best results again.

Two i.f. amplifiers giving a typical, practical example of circuits are given in Figs. 3 and 4. Note that in Fig. 3 there are no collector dropping resistors; these are unnecessary as V_{CC} is only 4v. and V_{BE} is about 3v.

You will probably notice that by-pass capacitors are lower than that predicted by the formula given previously or by the graph. This is because a different assumption was made (see the end of this article for assumptions made and derivation of the equation) to calculate the by-pass capacitors.

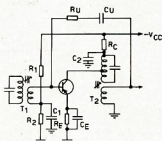
If you wish to use a mechanical filter in your i.f., the primary should be made parallel resonant and the secondary or output side made series resonant (see Fig. 5).

That concludes my screed on i.f. amplifiers. I haven't covered transistors and crystal filters but no doubt they are compatible; nor have I covered other useful i.f.s such as 30 Mc. i.f.; strips. They require separate considerations which would take up one article themselves—later perhaps.

The next thing is r.f. amplifiers. I will discuss the common emitter design as in Fig. 1 first, then the common base arrangement.

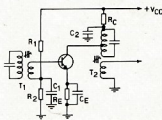
R.F. AMPLIFIERS

Fig. 1 gives the basic circuits for germanium and silicon transistors. The germanium transistor circuit, though, may not need components R_2 and C_2 as transistor gain and internal feed-



PNP GERMANIUM TRANSISTOR

FIG. 1(a)



NPN SILICON TRANSISTOR

FIG. 1(b)

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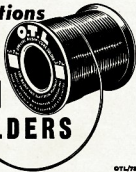
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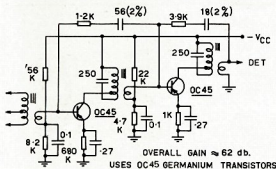


FIG. 3

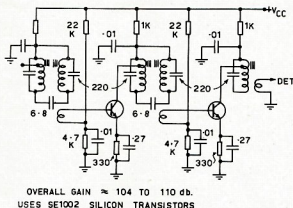
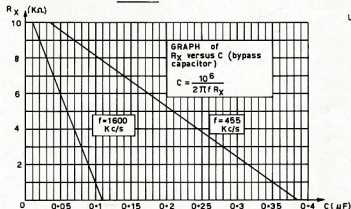


FIG. 4

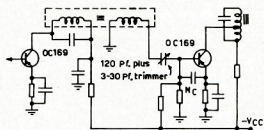


FIG. 5

back change at higher frequencies. Fig. 6 gives the general circuit for both silicon and germanium transistors. The amplifier is shown gang-tuned, but if used on a single frequency (or narrow segment) omit the tuning gang.

The design is the same as for i.f. amplifiers with the exception of the coils.

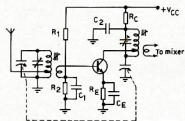


FIG. 6

Coil Design

More conventional techniques are usable here—high L/C ratio, high Q and good quality components, as in valve circuits. The base coupling link should be a few turns closely coupled to the tuned winding, even a tap on the tuned winding can be used, but a link coil is much easier to experiment with to find optimum turns.

The collector tap is best found by experiment but a good rule of thumb is about half way down from hot end for germanium transistors and one-third to one-tenth down from hot end for silicon transistors (depending on out-

put impedance and gain). A link coupled into the collector tuned winding is usable if you want to experiment to squeeze everything out of the circuit.

For the 3 to 30 Mc. range of frequencies, the by-pass capacitors can be found from the graph for 1600 kc. For frequencies higher than 30 Mc. use your experience (if any). Generally 500 pF. and 1000 pF. will suffice up to 200 Mc.—keep leads short.

Now another circuit hops up—the common base circuit. Fig. 7 gives the most commonly (and most practical) used form. As you can see the signal is still fed into the emitter-base junction, but now output is taken across the collector-base instead of collector-emitter as in the common emitter amplifier.

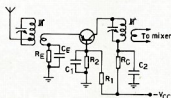


FIG. 7

The design of this amplifier follows the same lines as for the common emitter r.f. amplifier. R_1 , R_2 , R_3 , R_4 , C_1 , C_2 and C_3 are determined as outlined above. This circuit finds best use in the upper h.f. into the v.h.f.-u.h.f. region.

The collector may be connected to the hot end of the coil as it has a fairly high impedance in this configuration.

ABOUT THE GRAPH

The curves were calculated from the formula for resistance-to-be-by-passed limits up to 10K ohms as this is what is generally encountered in practice. The formula was derived as follows:—

Assume $X_0 = R_x + 1000$ (for effective by-passing).

$$\text{Now } X_0 = \frac{1}{2\pi f C}$$

$$\text{or } C = \frac{1}{2\pi f X_0}$$

$$\text{Then } C = \frac{1}{2\pi f \frac{R_x}{1000}}$$

$$= \frac{1000}{2\pi f R_x}$$

Now C is in Farads if f is in cycles. For C to come out in μF . and f to be in kc:—

$$C = \frac{10^3 \times 10^3}{2\pi f R_x}$$

$$\therefore C = \frac{10^6}{2\pi f R_x}$$

where C = by-pass capacitor in μF .

f = frequency in kc.

R_x = resistance in ohms.

$\pi = 3.142$.

(Continued on Page 13)

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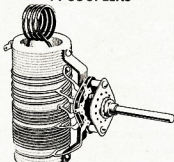
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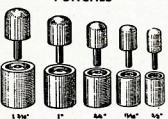
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PART THREE

HAROLD L. HEPBURN,* VK3AFQ

BEFORE describing the local oscillator section of the Moorabbin Club project receiver, the results obtained during the testing of the finished b.f.o. units will be discussed.

This testing was done in two stages. Firstly, the two coils were checked for "out of circuit" resonance before being soldered on to the printed circuit board and, secondly, the completed units were tested for oscillation, wave form and frequency range. Both checks were done at various project meetings arranged for the purpose.

The test set up was performed using the "out of circuit" performance of the coils is given in Fig. 5.

Output from a 75 ohm signal generator was applied across the coil under test. The resonating capacitance for the oscillator coil was 1,100 pF. (2 x 2,200 pF. in series) and 300 pF. for the amplifier coil. A v.t.v.m. fitted with an r.f. probe, was connected across the test coil and used as a resonance indicator. A few coils were checked with core full in and core full out to determine the range of adjustment available but the majority of coils were checked with the core full in.

Results obtained are detailed in tables 1 and 2.

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
1100	< 414	3
	415 - 419	1
	420 - 424	3
	425 - 429	10
	430 - 434	7
±2½ %	435 - 439	3
	440 - 444	1
	> 445	3
Number of coils tested = 31.		
Average = 430 Kc.		

Table 1.—The Oscillator Coil, L1.

The spread of results on both coils was higher than expected, especially in the case of the amplifier coils. Investigation showed that—in all cases but one—coils exhibiting a high "out of circuit" resonance were improperly assembled. Either the ferrite ring was

loose in the can or was prevented from bedding down on to the base of the former by the winding wires. These faults were corrected in the obvious fashion. In the one unexplained case, the coil reacted properly after re-winding and may have had too few turns in the first place.

Of the three oscillator coils exhibiting a very low "out of circuit" reson-

ance, one was rewound with the correct number of turns and reacted correctly. The two remaining "low" coils were not rewound and after incorporation in the circuit would only just tune to 455 kc. with the b.f.o. trimmer capacitor at minimum capacity. It is assumed that these coils had been wound with too many turns.

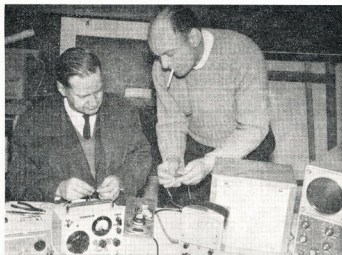
The equipment used to check the finished units is shown in Fig. 6.

Output from the unit was taken from the amplifier base and fed into a mechanical filter having a 455 kc. centre frequency and a 6 kc. bandpass at the -6 db. points. Output from the filter was fed into a c.r.o.

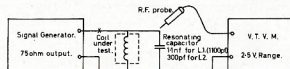
Adjustment was remarkably simple and consisted merely of setting the b.f.o. trimmer capacitor at half mesh and then adjusting the slug of the oscillator coil until a pattern was obtained on the c.r.o. The b.f.o. trimmer was then swung through its range and in most cases it was possible to tune the b.f.o. through the pass band of the filter.

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
300	< 489	1
	490 - 494	4
	495 - 499	3
	500 - 504	7
	505 - 509	-
±2½ %	510 - 514	5
	515 - 519	3
	520 - 524	4
	> 525	3
Number of coils tested = 30.		
Overage = 507 Kc.		

Table 2.—The Amplifier Coil, L2.

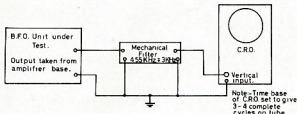


Neil VK3ZRT and Harold VK3AFQ testing stage 1 audio boards at Moorabbin Radio Club's project meeting.



Note: If a high impedance signal generator is used, a series resistance of 3-10K should be inserted at the point marked "X".

Fig. 5. COIL TESTING EQUIPMENT.



Note: Time base of C.R.O. set to give 3-4 complete cycles on tube.

Fig. 6. B.F.O. UNIT TESTING EQUIPMENT.



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Plus S.T. 25%. Plus pack and post 5c.

DITTO ½ WATT 50 for \$1.00

Plus S.T. 25%. Plus pack and post 5c.

SMALL IMPORTED ELECTROLYTIC CONDENSERS

WHILE THEY LAST—ALL ONE PRICE!

12c each, or lots of 50 \$5.00

Plus S.T. 25%. Plus pack and post 10c.

2, 5, 10, 25, 50, 100 uF., 6v.w. 2, 5, 10, 25 uF., 12v.w.
2, 5, 10, 50 uF., 25v.w. 2, 5, 10, 25 uF., 50v.w.

SILICON DIODES

SPECIALS

1N3194

400 p.i.v. at 750 mA. Equivalent — OA210, 1763, etc.

55c each plus S.T. 25%

Lots of 12 — **50c each plus S.T. 25%**

Plus pack and post 5c

1N3491

50 p.i.v. at 18 amps. Suitable for battery chargers, etc.

Either "K" or "A" to case available. **75c plus S.T. 12½%**

Heat Sink Adaptors to suit **25c plus S.T. 12½%**

Plus pack and post 5c pair.

1N3660

100 p.i.v. at 25 amps. Either "K" or "A" to case available

..... **\$1.25 plus S.T. 12½%**

Heat Sink Adaptors to suit **25c plus S.T. 12½%**

Plus pack and post 5c pair.



WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



Please include postage or freight with all orders

Two exceptions (noted above) would only just reach the lower side of the filter pass band and one would only just reach the high side of the filter.

Since the test is reasonably stringent the results imply that out of thirty-one units twenty-eight were correct and that the three exceptions were not more than 5-6 kc. off. Unless it was intended to use a mechanical filter centred on 455 kc. in the finished receiver, this minor variation would easily be taken up by centering the i.f. strip on the appropriate frequency.

Another twenty units were not tested at the project meeting, but all information to hand indicates that they are operating satisfactorily.

STAGE 4—LOCAL OSCILLATOR

The circuit diagram for the fourth stage of the receiver is given in Fig. 7. The emitter of the AF115N oscillator is tapped down the tank circuit by means of a capacitive divider formed by the 470 pF. and 1,000 pF. 5% silver mica condensers. These two in series provide 340 pF. of fixed tank capacity.

The tuning condenser is a Polar 15-392 single gang item. It was chosen for its excellent mechanical stability and ceramic insulation.

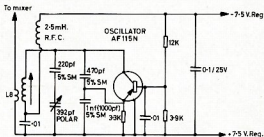


Fig. 7. VK3APC- LOCAL OSCILLATOR.

The 220 pF. 5% silver mica series padder condenser restricts the effective tuning swing to about 140 pF. and under these circumstances the oscillator tunes 3.9 Mc. to 4.5 Mc. Since the oscillator is on the high side of the signal, the resultant tuning range is 3.45 to 4.05 Mc. This range covers the 80 metre band and is ideal for future use with h.f. converters.

Removal of the padder opens out the signal tuning range to approximately 2.7 to 4 Mc. and makes the receiver suitable for tuning any chosen 1.5 Mc. of say the 6 or 2 metre bands.

Use of the companion 15-500 pF. variable in the Polar catalogue would provide a greater coverage (which would approximate to 2.5 to 4 Mc.), giving a 1.5 Mc. section of the v.h.f. bands. This latter suggestion has not been tried.

The coil L8 consists of a 10 turn tuned winding of 29 B. S. enamelled wire on a Ducon miniature Q2 pot core. The output link is a single turn of the same size wire.

The 0.01 and 0.1 μ F. condensers are Ducon 25v. d.c.w. "Redcaps" and the three resistors are normal tolerance items.

The complete unit—like its predecessors—is built on a printed circuit board made specially for the project.

The dial and drive used on the receiver is a Jackson Brothers' 6/38. It has a dual speed drive, semi-circular scale and plastic cursor. In the forward direction the drive ratio is 6:1 and for the first reverse turn of the tuning knob is 36:1.

This dial seemed to be the ideal compromise between size, price and mechanical excellence. It is free from backlash and is readily calibrated for whatever frequency range is of interest.

In Melbourne it is obtainable from Ham Radio Supplies in Hawthorn.

Next month it is hoped to describe the final section of the receiver—the r.f. and mixer stages—and to give information on the (50 odd) i.f. strips now under construction.

ERRATA

It is regretted that three condensers were omitted from the diagram of the i.f. stage published last month.

A 100 μ F. 15 volt electrolytic, paralleled with an 0.01 μ F. 25 volt redcap, should have been shown across the 7.5 volt regulated rails, while a second 0.01 μ F. 25 volt should be connected between the collector of the OC44 detector and ground (+7.5v.).

Transistor Amplifier Design

(Continued from Page 9)

USING THE GRAPH

Look up the value of the resistor to be by-passed (R_x) on the vertical scale, project a horizontal line across to the curve of the appropriate frequency. Where the horizontal line crosses the curve, draw a vertical line down to the horizontal axis (C) and read off the value of the capacitor and use the nearest value obtainable in your circuit.

Example: The emitter resistor of an i.f. amplifier at 455 kc. is 1K ohms.

A horizontal line drawn from 1K ohms on the R_x scale intersects the 455 kc. graph at a certain point. A vertical line drawn from this point down to the C-axis gives 0.35 μ F.

Well that is about the lot for i.f. and r.f. amplifiers. I have not covered all possibilities, but for most, the information presented above will help you to design and construct something to suit your needs.

REFERENCES

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- "A.R.", Sept. 1963 and May 1962.
- "73 Magazine," May, July, August 1962, January 1966.
- "Electronic Fundamentals and Applications," by John D. Ryder.

LOW DRIFT CRYSTALS

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East Melbourne, C.2, Victoria.

"FIFTY AND OVER"

"Well, well, well. If it isn't my old friend Bill. Or should I say sister Mary's old friend Bill. Ha, ha, ha. Well, well, Bill. Haven't seen you since last night. Ha, ha, ha. You can come in because Mary's out. She knew you were coming. Ha, ha, ha. No, I don't mean it. She'll be back soon and until she comes I'll entertain you in the shack. I've just switched the transmitter on. We'll have some fun getting contacts. But no YL's for you, old man. You're hooked already. Ha, ha, ha."

"Let's tune around a bit and see what we get. There's Bert ZFC. Listen. He's just finished a contact. I'll call him. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC... I'll give him a few more calls. Maybe the poor old man's deaf. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC. This is VK3ZOM listening for you, old man. What's new in the chookhouse? VK3ZOM listening. Over."

VK3ZFC, VK3ZFC. Well, well, well. Glad to know you're still in the land of the living, Bert. Ha, ha, ha. O.K. about the new gear you're building. By the way I've got Bill here with me. He comes round every night to see me. Ha, ha, ha. Though he doesn't seem to be very interested in radio. He's got other fish to fry. Ha, ha, ha. Yes, we're going to build some gear here, too. We've got patents out for a electronic mouse-trap, a mother-in-law detector and lots of other things I can't tell you about over the air. Ha, ha, ha."

We're going to be pretty busy here when we get busy. Ha, ha, ha. Say hullo to Bert, Bill. You'll have to learn to speak up for yourself. If you don't do it now you won't get a chance later on, that's for sure. Ha, ha, ha."

That's right. Well I'll put it back to you, Bert, in case your receiver's packed up and I've been wasting my words on the desert air. Ha, ha, ha. VK3ZFC this is VK3ZOM pulling the big switch on the transmitter and pushing the little button on the receiver and listening for you. Over.

VK3ZFC, VK3ZFC. This is VK3ZOM pushing the big switch on the transmitter and returning. Bill missed your words of wisdom, old man. He suddenly remembered he wanted to get toffee for Mary so he's shot off down the street. Maybe the sight of the gear frightened him. Ha, ha, ha. Sorry you've got to go out. I was looking forward to a real long rag-chew. Don't seem to get them often nowadays. Everyone's so busy. I'm busy, too, but not that busy. Ha, ha. Never mind. I'll get you again soon. Cheers and beers and don't do anything I wouldn't. Ha, ha, ha. This is VK3ZOM off and clear with VK3ZFC and having a snoop round the band. VK3AJE, VK3AJE, VK3AJE, VK3AJE, VK3AJE, VK3AJE, VK3AJE. This is VK3ZOM calling you. What say, Harry. Over.

VK3AJE, VK3AJE. Well, well. If it isn't old Harry. Ha, ha. Haven't heard you on the air for hours. And what's new in the State of Denmark? We've been very busy here doing lots of nothing. Ha, ha, ha. Anyway, back to you

she comes. VK3AJE this is VK3ZOM listening for you with both ears. Over.

VK3AJE, VK3AJE. In case you don't know it this is VK3ZOM returning. Well, well, well. Isn't that a coincidence. Must be a fight or a football match on this evening or something. Was just having a short and sweet contact with Bert. He had to go out, too. You'll have to get a mobile and then we can have a road chew. I mean a road rag chew. Ha, ha, ha. Well, cheers and beers and see you soon. This is VK3ZOM off and clear with VK3AJE and 'aving hanother 'unt—I mean having another hunt round the band... Over.

Hullo sister Mary sweetheart. Yes, boy friend number one came in and shot out again to waste some money on you. Can't imagine why. Okay. I'll tell mum you've gone out with him. I'll be having a rag-chew if I can find anyone. Must be someone who hasn't got to rush out to a fire or something. Ha, ha."

Hullo CQ. Hullo CQ... Hullo CQ... Hullo CQ. Hullo CQ. This is VK3ZOM with a sore throat looking for contacts. Isn't there anyone on the band? Or isn't the old transmitter working? ... Hullo CQ. Hullo CQ. Hullo CQ... This is VK3ZOM closing down in disgust after talking to himself for the last half hour. Still even if the audience was small it was intelligent. Ha, ha, ha. Still I must say the band's not what it used to be. Never mind, we'll try again tomorrow. This is VK3ZOM pulling all the big switches and going to bye-bye.

—Roy Hartkopf, 34 Toolangi Road, Alphington, N.20, Vic.

SIDEBAND TOPICS

Which manufacturer supplies each transceiver with an individual record of the v.f.o. temperature compensation-drift curve? GALAXY does that and no other! And with that graph there is a record of the drift compensation, never more than 500 cycles drift from cold to warmed-up and of the v.f.o. stability after 30 minutes warm-up period.

The GALAXY is a better bargain, better receiver, better a.v.c. action, sideband switching without frequency shift, up to \$100 savings with the full line of accessories.

- ★ GALAXY V. all-band Transceivers, with 240v. supply/speaker unit, \$600.
- ★ Hy-Gain Beams: TH3JR \$96; TH6DX \$200; 402BA \$150. Hy-Gain Verticals: 14AVQ \$44; 18AVQ \$70.
- ★ ALLIANCE and C.D.R. Antenna Rotators, 230v. a.c., \$35 to \$180.
- ★ AUTRONIC Automatic Keyers, \$70.
- ★ Mobile 12v. d.c.-d.c. Supplies, \$100 to \$120.
- ★ WEBSTER ALL-BAND Mobile Radiator, complete, \$48.
- ★ 5.7 Mc. and 9.0 Mc. Crystal Filters, Air Trimmers, Reduction Drives, hard-to-get Transceiver Tubes, Co-axial Cable Baluns, etc. Sorry, no 572B Tubes yet, the manufacturer and Waters Co. have let me down!

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- COLLINS heavy duty 12v. d.c.-d.c. Supply, with KWM-2 mobile mount, \$150.
- Genuine SWAN SW240, with neat home-made a.c. supply, \$275.

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NEW CALL SIGNS

JUNE 1966

VKIAN—R. C. Elliott, 37 Ingamells St., Gar-
ton.
VKIZCB—B. H. Christensen, 1 Bosch Place,
Cherry.
VKI2B—G. C. Jennings, 41 Carruthers St.,
Curtin.
VK2RC—J. M. Campbell, 10 Ingham St.,
Vron.
VK2UQ—W. M. Steward, 68 Westbrook Ave.,
Wahroona.
VK2BBC—J. R. Thyrd, 28 Hood Ave., Earlwood.
VK2BIA—H. E. Brown, 31 Miral St., Car-
lingford.
VK2BLG—G. C. Chenhall, 30 North St., West
Dubbo.
VK2BUZ—G. K. Trevitt, 28 Schofield Ave.,
Earlwood.
VK2ZFG—G. T. Pile, 52 Clement St., Forbes.
VK2ZFY—K. L. Robinson, 8 Church St.,
Pymble.
VK2ZFF—A. J. Smith, 16 Loftus St., Katoomba.
VK2ZHF—J. F. Hennell, 594 Great Western
Hwy., Pendle Hill.
VK2ZNO—D. J. Waterhouse, 28 Rosebery Rd.,
Killara.
VK2ZPF—P. B. Fischer, 8 Aubrey Rd., North-
bridge.
VK2ZTP—T. Deans, 29 Memorial Ave., St.
Ives.
VK2ZTR—R. G. Turner, 32 Railway St., Went-
worthville.
VK2ZXC—N. Deltch, 6 Water St., Camperdown.
VK2ZYV—North Shore Radio Club, 11 Ruby
St., Mosman.
VK3AQ—R. J. Callander, 383 Warrigal Rd.,
Melbourne.
VK3SL—M. L. Brane, 24 Ernest St., Broad-
meadows.
VK3AAZ—P. H. Cole, 59 Aymer St., North
Balwyn.
VK3AEY—D. G. Semmens, Teachers' Resi-
dence, Warrigal, via Colac.
VK3ARS—W. Yates, 26 Henry St., Highbury.
VK3AJV—R. E. Durrant, 1 Grosvenor St.,
North Blackburn.
VK3AMG—G. C. Page, 72 Ursa St., North
Balwyn.
VK3ATD—S. C. G. Macindoe, 101 Grange Rd.,
Toorak.
VK3AUF—J. J. Weidemann-Petersen, 58 Pien-
ty Lane, Greensborough.
VK3AIV—F. F. Holmes, 64 South St., Glenroy.
VK3ZRI—L. R. Price, 14 Wilks Ave., Malvern.
VK3ZRU—N. W. Ahrens, Diggers Rest.
VK3ZTS—P. J. Tyers, Tyers Rd., Bena.
VK3ZVC—M. T. Cole, 3 David St., East Bent-
leigh.
VK3ZWK—W. M. Kettle, Flat 6, 3 Edward
Ave., Dandenong.
VK4CO—G. Cole, Station: Nurses' Quarters,
Chillagoe Hospital; Postal: C/o. P.O.
Chillagoe.

VK4DU—J. K. McCarthy, Station: Maritime
Mobile aboard M.V. "Pandemonium,"
Postal: 13 James St., Currumbin Beach.
VK4QT—A. Anderson, 1 Quarry St., Ipswich.
VK4UB—W. Dalgleish, 25 Crawford St., Red-
cliffe.
VK4UD—R. C. Wright, 119 Elliot Heads Rd.,
Bundaberg.
VK4ZJ—R. J. Cummings, 56 Marsh St., Can-
non Hill.
VK5QZ—J. A. Hackworth, 24 Oaklands Rd.,
Somerton Park.
VK5ZGO—G. K. Oates, 17 Angus Rd., Haw-
thorn.
VK5ZPM—A. A. Matthews, 16 Gurr St., Good-
wood Park.
VK6ZFE—L. M. Gierczycki, 88 Alexander Rd.,
Rivervale.
VK6ZFR—D. V. Robinson, 5 Jarvis St., Bun-
bury.
VK6ZFR—P. C. L. Robertson, 9 Ruislip St.,
West Leederville.
VK8ZCF—H. Schroeder, C/o Peko Mine, Ten-
nant Creek.
VK9SR—Sopas Radio Club, S.D.A. Mission
Hospital, Sopas, T.N.G.



SURVEY OF OCCUPANCY OF H.F. BANDS

Part of the work carried out at the
Postmaster-General's receiving station
at High Park, Victoria, for the I.F.R.B.
is a survey of the occupancy of the h.f.
bands. During these surveys, it is ne-
cessary to identify, rate (in SINPO
code), and record all transmissions
heard in the band.

To simplify the work for the op-
erators, a frequency measuring receiver
had been designed and built having a
range of 500 Kc. to 30 Mc. The fre-
quency that the receiver is tuned to
is shown on an eight digit in-line
display. Accuracy is determined by the
standard 1.0 Mc. crystal used in the
counter, and in the present equipment
will be 1 in 107.

The problems that had to be solved
during the development of the counter
mechanism which is attached to a
standard communications receiver were
many.

—Proceedings I.R.E.E. Australia, August, 1966.

AUST. RESULTS OF WORLD- WIDE DX CONTEST, 1965

C.W.				
*VKIDA	7	8,424	108	8 18
*VK2PV	A	140,430	321	59 95
VK2VN	A	73,080	207	42 78
VK2ADE	A	42,630	146	40 65
*VK2APK	14	74,706	317	32 54
*VK2GW	7	34,800	242	20 30
*VK3AXK	A	131,979	436	41 70
*VK3RJ	21	20,300	147	20 30
VK3ABA	21	10,500	102	14 21
*VK3ADB	14	295,596	788	35 91
VK3ABR	14	6,300	50	18 24
*VK3APN	7	12,240	102	17 23
*VK3XB	3.5	1,034	39	6 5
*VK4EL	21	80,178	396	21 48
*VK4UC	14	8,811	45	15 22
*VK4SS	7	8,964	85	18 18
VK5BS	A	2,112	33	13 9
*VK5KO	21	51,264	246	23 49
*VK5WC	14	8,106	83	18 24
*VK6RU	A	244,032	549	57 107
*VK7SM	A	72,974	252	42 65
VK9DR	14	120	7	4 4

PHONE

*VK2APK	14	133,770	456	28 77
VK2VN	14	18,662	101	20 42
VK2WD	14	12,291	90	18 33
*VK3ATN	A	517,860	717	92 160
VK3LW	14	4,284	41	15 21
VK3XB	14	3,465	39	13 20
VK3LT	14	704	16	7 9
*VK4AT	A	141,750	380	40 86
VK4CK	A	5,048	51	17 16
*VK4EL	21	6,477	128	9 8
VK4SD	14	118,692	339	34 82
VK5LC	14	3,116	28	16 22
*VK9DR	A	16,170	104	19 36

* Certificate Winners.
† Continental Leaders—Single Band.

N.B.—Rules for the 1966 Contest are
the same as for last year. Refer October
1965 "Amateur Radio."

TECHNICAL ARTICLES

Readers are requested to submit
articles for publication in "A.R."
in particular constructional arti-
cles, photographs of stations and
gear, together with articles suit-
able for beginners, are required.

ERRATA

Several embarrassing errors crept
into the reprinted article last month,
"The 80 and 40 Metre Transistor Spe-
cial." In Fig. 1 the "transmit" side of
switch S1B is shown connected to the
two bases of Q3 and Q4, whereas it
should be connected to the two collec-
tors instead. The r.f. choke at the input
of L1 should be 10 microhenries in-
stead of 10 millihenries as shown. Col-
lector current for the oscillator is 7.5
mA; for the buffer, 100 mA; and for the
p.a., 800 mA, all with a 25v.
supply, on 80 meters.



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The Revolutionary DX-MAGNET V.F.A. (world patents pending) has been
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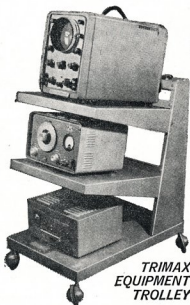
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★ 15.0 Mc. to 47.999 Mc. \pm 0.005%.	In Style "D" Holders, $\frac{1}{2}$ " pin spacing	\$5.05
★ 48.0 Mc. to 61.0 Mc. \pm 0.005%.	In Style "D" Holders, $\frac{1}{2}$ " pin spacing	\$5.65
★ 100.0 Kc. \pm 0.005%.	In Style HC13/U Holders, $\frac{1}{2}$ " pin spacing	\$9.00
★ 1.0 Mc. \pm 0.005%.	In Style "D" Holders, $\frac{1}{2}$ " pin spacing	\$9.00

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HOBART:	141 MURRAY STREET, HOBART	" 3-3707



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Success shown by Australia-wide sales of the Trimax Laboratory Equipment Trolley is due to functional design, use of high quality rubber tyred swivelling castors, and finest workmanship.

Fitted (as illustrated), the unit is ideal for moving heavy electronic test equipment. By inverting the shelves, the unit becomes an ideal mobile production trolley with deep, easily accessible trays.

Made in standard order, the Trolley is finished in grey hammertone metal. Available with or without three mains outlet sockets which allows mains-operated equipment to be supplied by one extension lead.

Trolley supplied in easy-to-assemble knock-down form for economic transport.



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L37/A



YO AWARDS

GENERAL RULES

The gallant idea of peaceful coexistence among people, as well as the tightening of friendly relations with all Radio Amateurs of the world, has animated the Central Commission of the Radio Sport of Romania to sponsor a number of valuable awards.

All Radio Amateurs are entitled to these awards, by carrying out the conditions required for each particular award, under the following general rules:

Bands: 3.5, 7, 14, 21, 28 Mc.

Mode: CW, AM, SSB, mixed.

RTTY Minimum 330; RS: Minimum 33.

All contacts have to be confirmed by QSL cards. YO cards being in the applicant's possession. (Exception to this rule may be granted for QSOs made during the international contests).

YO awards are not issued for various modes, but each class is a separate award.

The application is of GCR kind, and the log will be certified either by the awards manager of the Association, or by two licensed Radio Amateurs having checked the validity of the sighted QSL cards. Thus, the original QSL cards are not needed for checking, but CQSR may be used. (Exception to this rule may be granted for QSOs made during the international contests, for a direct inspection).

The fee for any award and class is 7 IRCs or \$1.00 (packing and mailing included).

Applicants having checked the validity of the awards with the above mentioned rules.

DXCC and WAE official lists will be the basis for YO awards.

Applicants for all YO awards will be addressed to: Central Radio Club, P.O. Box 1995, Bucharest V, Romania.

Awards will be issued only after the YO stations listed in the application logs have received the applicants QSL cards.

When there are fears that some cards have gone astray, the applicant is urged to send new QSL cards for the YO Hams, together with his application.

For QSL cards sent for all YO contacts made during contests, too.

The applicants may get, at their request, YO badges too, at a cost of 7 IRCs or \$1.00 each.

YO-AD-WORKED ALL YO DISTRICTS

The award is issued for two-way contacts with YO stations located in all districts, namely: YO2, YO3, YO4, YO5, YO6, YO7, YO8, YO9.

The award has three classes: Class I, for working all 8 districts; Class II, 6 districts; Class III, 4 districts. Each YO district worked will be awarded by a specific seal on the certificate.

A district is considered to be fully worked after two-way contacts with a minimum number of YO stations located in that district, depending on the applicant's location zone, as follows:

Location Zone	No. of QSOs needed for each YO district	Class I	Class II	Class III
15, 16, 20	10	6	4	3
14, 17, 21, 23, 24	10	6	4	3
All other Zones	3	2	1	1

A YO station may be worked but once. Valid contacts after 1/1/60.

YO-AM-YO ALMA MATER

This festive award is issued to celebrate the 10th anniversary of Bucharest University. For each award, the number of QSOs, 7/6/74 will count. Depending on his location, the applicant has to gather the following number of points:

Location Zone	Pts.	Needed	Per cent contact
15, 16, 20	35	7	14
14, 17, 21, 23, 24	60	3	1
All other Zones	20	8	3

The points mentioned above are scored for working different YO stations.

Working the same YO station on several bands will be counted as that contact, and will be multiplied by 2 for 2 bands, by 3 for 3 bands, by 4 for 4 bands, and by 5 for 5 bands. For instance: A Ham located in Zone 3 had 4 contacts with the same station on 3.5, 7, 14, 21 Mc. bands. The overall score for these contacts will be 4 plus 2 plus 1 plus 3 equals 10 multiplied by 4, equals 40 points, which is enough to get the award.

YO-BZ-WORKED BALKANS PEACE ZONE

This award is issued in three classes, for contacts made after 1/1/60, in accordance with the following rules:

Stations outside Europe (DX): Class I, 5 countries and 16 districts; Class II, 4 and 8; Class III, 3 and 4; including a minimum of three YO districts.

Balkan countries and districts considered for this award are:

Countries	Districts
1. BULGARIA	LZ1, LZ2
2. GREECE	SV
3. CROATIA	SV
4. DODECANESE	SV
5. TURKEY	TA (European part)
6. ALBANIA	Y02, Y03, Y04, Y05, Y06, Y07, Y08, Y09, Y10, Y11, Y12, Y13, Y14, Y15, Y16, Y17, Y18, Y19, Y20, Y21, Y22, Y23, Y24, Y25, Y26, Y27, Y28, Y29, Y30, Y31, Y32, Y33, Y34, Y35, Y36, Y37, Y38, Y39, Y40, Y41, Y42, Y43, Y44, Y45, Y46, Y47, Y48, Y49, Y50, Y51, Y52, Y53, Y54, Y55, Y56, Y57, Y58, Y59, Y60, Y61, Y62, Y63, Y64, Y65, Y66, Y67, Y68, Y69, Y70, Y71, Y72, Y73, Y74, Y75, Y76, Y77, Y78, Y79, Y80, Y81, Y82, Y83, Y84, Y85, Y86, Y87, Y88, Y89, Y90, Y91, Y92, Y93, Y94, Y95, Y96, Y97, Y98, Y99, Y00, Y01, Y02, Y03, Y04, Y05, Y06, Y07, Y08, Y09, Y10, Y11, Y12, Y13, Y14, Y15, Y16, Y17, Y18, Y19, Y20, Y21, Y22, Y23, Y24, Y25, Y26, Y27, Y28, Y29, Y30, Y31, Y32, Y33, Y34, Y35, Y36, Y37, Y38, Y39, Y40, Y41, Y42, Y43, Y44, Y45, Y46, Y47, Y48, Y49, Y50, Y51, Y52, Y53, Y54, Y55, Y56, Y57, Y58, Y59, Y60, Y61, Y62, Y63, Y64, Y65, Y66, Y67, Y68, Y69, Y70, Y71, Y72, Y73, Y74, Y75, Y76, Y77, Y78, Y79, Y80, Y81, Y82, Y83, Y84, Y85, Y86, Y87, Y88, Y89, Y90, Y91, Y92, Y93, Y94, Y95, Y96, Y97, Y98, Y99, 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Sub-Editor: D. GRANTLEY, WIA-L2022
P.O. Box 222, Penrith, N.S.W.

Following my comment on A.O.L.C.P. holders participating in the receiving section of the I.A. controlled contests, our contest manager, Neil Penfold, VK6ZDK, has written to giving an answer to the question of whether or not a concession. Any non-active Amateur may enter the receiving section of any W.I.A. conducted contest. For any queries regarding contests and results, please write to Neil Penfold, VK6ZDK, 88 Goulden Ave., Mt. Yokine, W.A. My apologies mentioning Jim BRU as holding this position. On behalf of all our listeners, Jim, my congratulations on your excellent operating and your R.D. Contest.

AROUND THE SHACKS

Bryan Prosser, L6023, has recently returned from his holiday in VK3. On his return to the shack, he has been confined to 20 metres, but managed to hear VE3AIU, ZC4AK, Z5IIR, ZC3J, XE2JZ, HB9VW, FB8YY and VP2NZ s.s.b., whilst 15 mx has been producing only Ws and a KC4. Conditions have improved on 40 mx, where many Ws and a call from FB8YY were logged.

Alan L8029 has been listening on 20 mx s.s.b.
o, and reports DL4SL, F2PN, CP5BK, OA-
W, CE6DQ and EA4DO.

L3042 has been on holidays following series of trips around most VK call areas since late 1978. WJ was assigned to his duties with the QSL Bureau curtail Eric's listening time, just as well for most of us, nevertheless, he has sheeted off.

The above listing were LAZH/MM, YBAG/F and WEAMO/B on 80 mc; K3WVF/MM, YVZF/V, VRZDK, ZD6ADN/MM, GZGZ and ZLGI on 40 mc; KG8AQA, YVACB ZE-2, VKQK/G GFOF, SAITY VETENIC CH and SH-2 on 20 mc.

YB were some of the 20 mx loggings. As matter of interest, the logging of ZDJ3 on 40 mc was at about 1000 hours.

For the month included FKBAH FX-1, HASKPB (3.5), OESPBW (3.5), UAKSKO, FOFKO, and YVAFB two times on 3.5.

would like to welcome Harry Snell, LZ136,
the School of Signals at Balcombe, who is
present having trouble with his rx and needs
for assistance in his attempts to rectify
Don L3022, has now got his GR1 back and
is returning to the state of affairs please
his performance. Unfortunately, it was
in operation for the R.D. Contest, and thus
lost its b.f.o. at a crucial moment, there-
fore negating L3022 to the also runs for the
contests were on the air. I include
VR9M, VR9AM, VK0MI (at last), SWIAZ,
17BIM, 17IAUT, EA5CH, YS2LE, ZS8TE,
17EKE, GB5VJ, GC2FMV and 9V17W. All
these being from QSLs.
GBAX, SWI and VP2KJ (Nevis Is.)—total
of 100.

over to Greg Johnston of VK7. Using his
 inverter as described in "A.R." earlier this
 year, Greg turned in an outstanding score for
 the R.D. Contest. Duties as QSL manager for
 VKOMI take most of Greg's time, but this
 is no doubt tough for him due to the dozens
 of inaccurate s.w.l. reports finding their way
 to him. Once again we stress the importance of
 reliable reports and accurate ones—this
 applies not only to reports for VKOMI, but

All cards sent out. Alan Rafferty, L5065, had a very good run in the R.D., and was rattled up a good score. He is concentrating on the R.D. and his studies, he had managed a couple of newbies, these are PX1SS (QSL via P8JS) and IP1AA, whose locality is unknown to Alan. As a matter of general interest, L5065 names VKs U, 9DJ, 2AHM and 3MO as being amongst the best signals and ops. in the phone section of the R.D. A state map from Alan tells us that the following have received from OK1ADP: DBEL, VJCTE, EA3OT, VK8JO, OH2BS, KK-Q, UA0SK.

Warwick LZ211, out of the R.D. through
advises, managed to log VP7, ZS6, FB2, ZB2,
78, 5W1, ZL5 and IPIGAL. His inward QSLs
are from LZ1BZ, VS8AFR, 5Z4IR, ZC4RM,
4Z2AEC, UAOEH, UA4KHW, EA7HZ, UP2KAB
d UC2BF with YK1AA for good measure.
Bob Halligan reports new countries heard,
MM and ZF1GC, with confirmations in from
88B0, LZ1BZ, PJ2MI, ET3WH and 6Y3AR.

a large number of countries, including VQ-SEF, ZE3, TG9, SV1, F2, HR1, OH2, 7X2, GC6, ZS4, UP2, YS2, OD5, HC1, CR6, TI2, 9V1, EP2, YN6, MI6, ZS6, SR6 and many others. Inward cards were received from DJ4OA, VESLG, 8J2JC, VEGHM, JAL6, HCSBZ, HH9DL, 8J-2VX, HRIJAP, ZS3JJ, VKOMI, VOIEL and

Finally, I wish to acknowledge interesting tapes from Mac Hilliard, Bryan Prossor, Doug Head, and a really informative "round robin" from four of the I.S.W.L. members resident in G land. Thanks chaps.

VICTORIA

S.w.I. Group news, as supplied by Ian Woodman, Secretary. The Group held the annual election and had a slide show on Central Australia at the August meeting. The Sept. meeting was devoted to an excellent film evening, supplied by the Forestry Commission of Vic. and the agenda item for the October meeting is "Transistors and Their Operation." Nothing has been arranged for Nov., but our usual party will take the Dec. meeting.

The Group set up a listening station for the R.D. Contest, manned by six of the keenest members. Early Saturday afternoon they commenced to erect the aerials. By starting time, the boys observed that the contest was in it that it became a hazard to low flying birds. The Contest got under way with five members operating in the receiving section, and one in the tx (v.f.) section. Unfortunately, the receiving section was alerted when the tx was switched on, and our stalwart A.O.L.C.P. holder narrowly escaped a lynching. However, it was a most enjoyable Contest, and the Group succeeded in turning in quite a few presents for

ADDRESS FOR FUTURE NOTES

Due to the fact that in the near future I will be moving QTH to either the lower Blue Mountains, or further south, would you please address all mail to me as from this issue to: Don Grantley, P.O. Box 222, Penrith, N.S.W. That's all for this month, 73 de Don L2022.

DX NEWS

QSLs for IC1KDB go to Box 336, Naples, Italy. VU2DIA still active on 14015, 14303 and 14045 from 0001Z-0200Z. QSLs via VU2DI. XP1AA heard on the bands recently is legitimate and is based in Greenland. BV1USF will QSL via W2OCN. According to the I.S.W.L. magazine "Monitor," VU3KS and ZA2AA/YUI are not legitimate. 6W8DD has been heard on 7018 c.w.

I note in the personal notes, Alan Raftery reported IP1AA and Warwick heard IP1GAI. However, only news I have from that area is that Dom IT1AI was to operate from Pelagic Is. as IL1AI, actual QTH on Lampedusa Is., provided the A.R.R.L. would grant separate status. Where will it all end?

Further to the above memo on IP1AA, latest to hand is that the operator is OXSAH, QTH Thule, and operating on a special permit with 500 watts on 14110.

ITIAH has been heard on 14034 c/w. QSL to Box #41, Ulan Bator, Mongolia, whilst J7IAJ is on 14093, QSL to Box #38, Ulan Bator. Heard at 1502z. J7ABR is manager of ETICETI, W2PJC, Zone 18, QSL manager for ET2AC is WANIF, who asks that either a s.a.s.e. or I.R.C. be included with all reports.

The following are new I.S.W.L. members, and QSLs for these camps can be sent via the Bureau. G6DQZ, G6EYK, GW2KW, G6XPK, VE9AG, WB2RLA, V8WU, WE2CKS, W2PCJ, WI0FZ, HK4FZ, HP1JC, WB2AQ, GSUMA, G3FCQ, G6DK, QSL to ZDJ8 go via K4LJV. Address for QSLs to VS9CJ is S/Sgt Jack Cooper, c/o 8V Bureau, Box 87, SINGAPORE. VU2PJ is QSL to the Canadian Embassy, New Delhi, India.

AWARDS

The QRP Amateur Radio Club, formed with the object of demonstrating that the use of limited power (100 watts or less) can create a lot of fun, is now open to all those amateurs that we are still able to enjoy our hobby by using the minimum power necessary to communicate. We are now accepting applications from power operators, and Amateurs receiving 5.1 reports may use these for award purposes in the last two years. We are now accepting applications from anyone who can tell us where 5.1 reports can actually assist an Amateur. Five awards are issued, and are available to anyone who can tell us in the 5.1's interest, they are: QRP-25 issued to a.c.w.h.s who have confirmations from 25 QRP club members anywhere in the world. QRP-100 issued to a.c.w.h.s who have 100 and 200 plus every additional hundred. Can be also endorsed for working 10 members

No. 2 is the W.A.C./QRP, which is issued for contacts or s.w.l. reports on stations in all s.x continents. No. 3 W.A.S./QRP requires a card from each of the 50 States which make up the U.S.A. No. 4 is the D.X.C.C./QRP. No. 5 is the 1,000 mile per watt award. This may be collected by s.w.l.'s if they hear a station at such a distance and using such power, that the distance divided by the power input is 1,000 or more.

Cost of the first four awards is one U.S. dollar or 1.0 L.R.C.s each, while the 1,000th award costs 100 L.R.C.s. The first award is a one L.R.C. and a stamped addressed envelope. Club members are issued awards annually, half rate for club members who are not published, but members who are published in QRP contacts, if you have heard this number in a QSO, then a QSL card is not required. If you have not heard this number, then the QSL must be produced and power shown. The A.R.R.L. has a QSL card for each award. The application for all awards other than the QRP-25, your QSLs can be from any station using less than 100 watts, regardless of whether he is a club member or not.

Many VKs are club members, and they can be identified in a QRP QSO by the use of

on behalf of interested parties.

assigned to me on behalf of interested members by Chas. Taylor, VK4UC, who is a member of the club, and who is the holder of the W.A.C./QRP, and applicant for the 1,000 mile award. Thanks to you, Chas, for this information, and I for one will be looking for the QRP stations.

VK-ZL CONTEST

Two things to remember here are that we

may log ZL as well as overseas stations, and that we can log each station twice on any one band, once on phone and once on c.w. You must keep a separate log for each band and each call area of W, JA, SM and UA count as a separate country and bonus points can be claimed for them.

Entries from VK must be sent to the N.Z. A.R.T. Contest Manager, 152 Lytton Rd., Gisborne, New Zealand, by 31st December.

High scores and new countries are usually the thing in this Contest, full rules for which appeared in "A.R." of July 1966.

That winds it up for this month, 73, de
Don L2022.

V L E NOTES

V.H.F. NOTES

(Continued from Page 19)

nels on the bands than have been allocated to us.

With the rumoured advent of the availability of high band f.m. equipment, it would be good to see some 2 mx channels in operation. But it has been suggested that people normally calling CQ should endeavour to do so on the hour, thus enabling people tuning the band to know what activity is liable to be present.

Sunday, 7th August, was an interesting day on the f.m. net. Ken 6ZBT and Barry 6ZCF operated portable from Bluff Knoll parking area. Wayne 6ZDD and Wolf 6ZAY were portable on Mt. Solus and managed to work them. A distance of 120 miles.

From Mt. Solus other stations worked included Pat 6PH (Narrogin), Aub 6XY (Wickpin), Danny 8ZFF (Bumbury), Lance 6LR and Jack 8BU (Yunderup). Perth stations heard included 6ZEP, 6WV, 6ZDB, 6ZCL, 6ZEK, 6ZDS, 6ZFM, 6QJ, 73, 8ZEK.

CONTEST CALENDAR

1st/2nd October: **VK-ZL-Oceania DX Contest (Phone).**
 2nd/3rd October: **W.A.D.M. Contest (c.w.).**
 8th/9th October: **VK-ZL-Oceania DX Contest (c.w.).**
 15th/16th October: **R.S.G.B. 21/28 Mc. Telephony Contest.**
 22nd/23rd October: **"CQ" "World-Wide" DX Contest (phone).**
 29th/30th October: **R.S.G.B. 7 Mc. DX Contest (phone).**
 1st/2nd November: **R.S.G.B. 7 Mc. DX Contest (c.w.).**
 13th/14th November: **International OK DX Contest (c.w.).**
 19th/20th November: **R.S.G.B. 2nd Top Band "1.8 Mc." Contest.**
 26th/27th November: **"CQ" "World-Wide" DX Contest (c.w.).**
 10th December to 15th January: **Ross A. Hall Memorial Trophy V.H.F. Contest.**
 11th/12th February: **John Meyle Memorial Memorial Trophy.**



can be given the support of the Division in many ways without involving the time or money of the W.I.A. Council.

While attending a Conference (on other matters) in Melbourne, I met a teacher from Aquinas College in Perth who gave me some details of Bro. McKenna's organisation at the College. What a pity Perth is so far away—it sounded so impressive that I would like to visit.

I am personally keen on the Duke of Edinburgh Award Scheme and I am glad to hear that soon there will be definite views of how Y.R.S. achievements fit into the pattern of Gold, Silver and Bronze Awards. Do Club Leaders have these in mind for development?

VK2 jottings are plentiful as usual. Y.R.S. certificate holders are to be allowed to purchase from the Divisional Disposals Store. Pierce 2APQ suggests that advanced clubs might participate in the Australia Project and should telephone him if interested. A new certificate for Radio Monitors is suggested (i.e. listening in a systematic way through specified s.w. segments). A total of 305 Elementaries have been awarded so far in VK2 alone. Alan Watson, secretary of Christmas Island Amateur Radio Club, has sent \$15 towards Y.R.S. expenses—even its adult members are sent for Y.R.S. certificates. Bruce North, of Kiama High, has full A.O.C.P. and joins the small group of schoolboys A.O.C.P. The experiment at Mittagong Training School for Boys (trying the effect of an absorbing interest in Electronics) is still proceeding but could benefit from some help in the way of parts, duplicated sheets and any instructional material. Mr. Jack Standard (Epping Boys' Club) has the loan of a good 150w. a.m. tx and should now be on the air. (All interested in Y.R.S. should gather on 30 m. Wednesdays at 1800 E.S.T.) Camp Technology will be on again at Christmas—enquiries should be made early to Mr. T. Mayne, 16 St. Aidan Ave, Dundas. Donations are gratefully acknowledged from Milton 211, Commonwealth Electronics, A.W.A., General Accessories, S.T.C., O.T.C. and Mr. Hope. New clubs are formed at Homebush Boys' High and Singleton High (thanks to Mr. Horsfield, who was a 1955 member of the Sydney Teach-

ers' College Radio Club). Jan 2BJO will help at Singleton and they should be a transmitting club before long. Max 2BHK reports that Scene High should be active soon—he is building a tx for it. 73, Ken 1KM.

— . . . —

Publications Committee Reports

At the September meeting the Committee considered correspondence from the Secretaries of VK2, VK4, VK5 and VK1, and a verbal report from VK3, all dealing with the annual mass deletions on those unfinancial. It was decided that for this year the re-instatements will take effect from the October issue instead of January, as was suggested. Later in the year consideration will be given to the suggestion from VK2 that the Divisions be charged the costs involved in making the re-instatements.

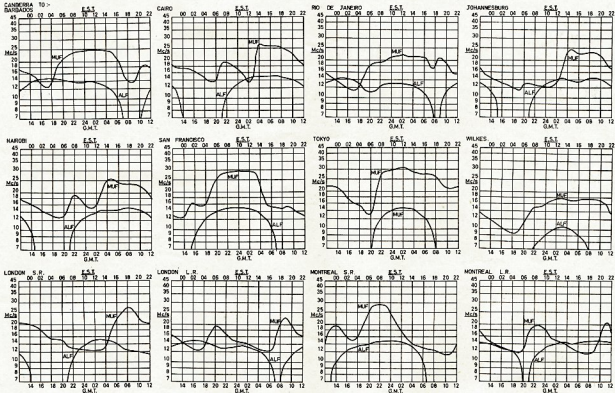
Correspondence on other matters was received from VKs 2ZTM, 3ZOF, 3ASC, 4AT, 4QL and Greg. Johnston. Mrs. Shawsmith wrote to advise that AI 4SS is on the sick list and would be unable to do the DX Notes this month.

Technical articles were received from VKs 1AU, 2PY, 2ZAI, 3UG, 3XY, 3ABP, 3AHT, 3ASC, 5ZDX, SRG and Greg. Johnston. Sideband Notes have been omitted this month as they arrived too late for us to prepare drawings.

During the last month a number of letters were received from individuals advising changes of address for the magazine. These have been sent to Divisional Secretaries, to whom they should have been originally addressed. The only changes of address to be notified to "A.R." are those for direct subscribers and the Call Book. Call Book alterations must also be notified to the P.M.G. Department.

The Call Book is progressing to schedule and at this time no delays are foreseen.

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FEDERAL AND MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

As mentioned in these columns a month or so ago, it was reported that two Amateurs were going overseas, and would endeavour to bring out a little about what was happening in other countries as far as Amateur Radio is concerned. Allan Elliott, VK3AL, is still away at the time of writing, and has not yet returned to hearing of his observations after his visit to Japan. Dave Jeanes, VK2BSJ, has returned from vacation in U.S.A. West Coast and some of his comments may be of interest.

His comments on the attitude of the American Amateur to the future of Amateur Radio is particularly interesting, and to quote him: "No Ham that I spoke to was concerned about I.T.U. or the future of the Ham bands. They are so convinced that the government is well aware of the part they play nationally, and internationally that they seem confident that the bands will be retained, if not expanded. Listening in locally, I can appreciate what they mean. There are literally thousands of them on the air at any one time. Their nets are something to hear. The skill and speed which they pass through is amazing. Frame patching is part of life and with calls for military personnel, etc., they, in fact, render an effective part in the communications set up."

This apparent complacency is something to be marvelled at, especially in the light of the official comments that one hears and whilst this state of affairs may be very good, and promising for the Amateur population in U.S.A., the same attitude of complacency of the Amateurs' worth will not necessarily apply in less fortunate countries with limited Amateur populations. However, the next I.T.U. conference will tell the tale.

Dave also spoke with Bill Orr, W5EAL, at the Arns factory and acquired some information on launching details for our Australian friends. Some of the shacks he visited were KJ0FE, WLDD, WVB3G, VETBJ, VETAKB and VETBIB. Being a ham, Dave apparently has a very pleasant tour and Federal Executive are indebted to him for the time he took to discuss some mutual problems—thanks a lot Dave!

HANDBOOKS AND REGULATIONS

As mentioned before, no work has been completed and all that requires to be done is the drafting of the necessary regulatory changes by the Commonwealth Attorney General. All the official action has slowed up the final release of all details.

FEDERAL QSL BUREAU

The Czechoslovak Central Radio Club will again stage the International OK DX Contest from 0005z to 2400z on Sunday, 12th Nov. All bands are open. A thorough list of rules and the Contest is on c.w. only. Full rules and sample log sheets may be obtained from this Bureau.

From 1st August the address of the W3 QSL Bureau is Jesse Bieberman, WKRT, RDI, Valley Hill Rd., Malvern, Pa. 15353, U.S.A. The address for the W3 QSL Bureau is M.A.R.S. Radio Station, Hq. 93rd Signal Bn., A.P.O., New York 08175, U.S.A.

The Bureau of Amateur Radio has decided on its aims and conditions of membership. This is based on long term service and excellent achievements in the field of Amateur Radio. Full details of the membership requirements may be obtained from this Bureau or from OH2YV. There is no membership fee.

The American Radio Relay League is celebrating to mark the twentieth anniversary of its foundation. The festivities are scheduled for October and November, and will be held on the air continuously for 24 hours. This club, which is associated with the R.E.F., caters particularly for the listener section of that body.

The QRP Radio Club is conducting a publicity drive to increase its membership above the 3,000 mark. This active club has members in all continents and in over 40 countries. It is an organisation of Amateurs who accept the challenge of operating on the low power conditions to effect less QRM on very crowded

Amateur bands. Hundreds of its members are seasoned and veteran operators who depend on their operating ability and knowledge of radio and band conditions to effect contacts rather than to exercise brute force with high power and cause needless QRM. The club sponsors contests at regular intervals and a series of worthwhile, collective awards for operating ability are available.

Membership is restricted to stations employing a top power of 100 watts or less, and lifetime membership costs one dollar (U.S.) or 10 I.R.C. This includes the receipt of the club's quarterly newsletter for the first year of membership. Renewal of subscription for the newsletter is one dollar or 10 I.R.C. annually. This club, which already has a score of VK/ZL members, should make great appeal to VK Amateurs of international position. All membership enquiries should be addressed to the writer, or to Fred Behrman, K7LNS, 3425 King Rd., Milwaukee, Oregon, U.S.A.

Traffic through this Bureau for August reached the all-time monthly high of 6,146 cards. Following on 4,900 for each of the three previous months, a record year seems assured.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

A larger than average attendance—about 80—turned out for the VK2 Division's monthly meeting on Friday, 26th August. In the absence of the President, Mr. J. M. T. Davies (2AUC), the chair was occupied by the Senior Vice-President, Bill VK3YB.

The lecture, "Integrated Circuits—Present and Future," delivered by Mr. Trevor Andrews of the Fairchild Transistor Co., was a very successful change in the field of electronics since the advent of semi conductor devices, a mere 10 or 15 years ago, that it was impossible to use current radio programmes held. Only a few years ago quite influential sections of the industry held the view that transistors would never take the place of valves; also that they would never operate above 3 to 6 Mc. However, there had been such vast technical advances that transistors were now available for operation in the 500 Mc. region, while even the most non technical person must realise that, to quote one instance, the success of the current radio programmes revolved around the fact that valves have indeed been superseded to a very large extent by transistors. The building of computers was another field where transistors had come into their own, taking these instruments from their original standing of bulky electronic curiosities to the present stage where they were economic necessities.

The lecturer said that the output of integrated circuits in trading over the past two years had risen from 50 to 180,000. The amazing increases in the use of semi conductor devices in such a short space of time had been assisted in large measure by improved methods of mass production.

Touching on what is perhaps the most important question of the evening, Mr. Andrews said that manufacturers of communication equipment had been charged with the task of producing more and more. However, a change was coming over the scene. A further pointer to what we may expect in the future was that, in the U.S.A. at the present time, the complete sound channel for

colour l.v. receivers may be purchased (in large lots) for \$3.50 each.

In moving the vote of thanks to the lecturer Rex 2YA said Mr. Andrews had illustrated by his very first lecture what wonderful opportunities awaited the younger generation who were about to enter the field of electronics. He will be the subject of a lecture by the Education Officer (Harold 2AAH) has lined up Syd 2SG to give the lecture at the October meeting, the subject being "Television Signal Generation." Syd has had many years' practical experience in the field of television. The lecture for November will be given by Ted Bandstand, an A.W.M. engineer, on "Solid State Sideband."

Visitors at the meeting included John ZL-2AUA and Jim ZL3JY. The Hunter Branch was represented by Keith 2AKX and Tony 2ZCT, while Mr. E. Archibald, Superintending Airways Engineer from D.C.A., was also present.

The following applicants were admitted to membership of the W.I.A.: Full Members—J. H. Christensen (12BG), J. M. T. Davies (2AUC), R. A. Emmerton (2AUC), J. K. Gibling (2ZKG), G. S. Leatham (2ZGL), R. G. Lukin (8ZDL), R. A. McLean (2H4), J. M. T. Davies (2AUC), Associates—Geoffrey Campbell, D. P. Johnston, J. E. Relf, W. Silberstein, F. Tubbs and R. Warfield.

W.I.C.N. News: Peter 2AXJ informs us that the new 146 Mc. I.m. base station has been obtained and installed at 2WI Dural, and that the reports have been received of better coverage. This has released 2KJ's tx, which had been installed temporarily at Dural. The 2KJ's tx is now being put up at a new net from country areas. There have, of course, always been several stations in Orange, but the 2KJ's tx is now being put up at a new net from country areas. There have, of course, always been several stations in Orange, but the 2KJ's tx is now being put up at a new net from country areas. There have, of course, always been several stations in Orange, but the 2KJ's tx is now being put up at a new net from country areas.

Other new stations over the past couple of months include 2ZDN and 2BJO (Hunter Branch), 2ZGJ (Newcastle), 2ZGJ (Newcastle) (Berry) and 2GE, 2ZGB, 2ZGR, 2ZGX, 2ZAF and 2ZJS from the city.

Information on the frequencies of the W.I.C.N. stations is as follows: Two Metres (f.m., plus or minus 15 kc. peak deviation)—Channel A, 3.5788 Mc.; Channel B, 3.5788 Mc.; Channel C, 3.5788 Mc.; Channel D, 3.5788 Mc.; Channel E, 3.5788 Mc.; Channel F, 3.5788 Mc.; Channel G, 3.5788 Mc.; Channel H, 3.5788 Mc.; Channel I, 3.5788 Mc.; Channel J, 3.5788 Mc.; Channel K, 3.5788 Mc.; Channel L, 3.5788 Mc.; Channel M, 3.5788 Mc.; Channel N, 3.5788 Mc.; Channel O, 3.5788 Mc.; Channel P, 3.5788 Mc.; Channel Q, 3.5788 Mc.; Channel R, 3.5788 Mc.; Channel S, 3.5788 Mc.; Channel T, 3.5788 Mc.; Channel U, 3.5788 Mc.; Channel V, 3.5788 Mc.; Channel W, 3.5788 Mc.; Channel X, 3.5788 Mc.; Channel Y, 3.5788 Mc.; Channel Z, 3.5788 Mc.; Channel AA, 3.5788 Mc.; Channel AB, 3.5788 Mc.; Channel AC, 3.5788 Mc.; Channel AD, 3.5788 Mc.; Channel AE, 3.5788 Mc.; Channel AF, 3.5788 Mc.; Channel AG, 3.5788 Mc.; Channel AH, 3.5788 Mc.; Channel AI, 3.5788 Mc.; Channel AJ, 3.5788 Mc.; Channel AK, 3.5788 Mc.; Channel AL, 3.5788 Mc.; Channel AM, 3.5788 Mc.; Channel AN, 3.5788 Mc.; Channel AO, 3.5788 Mc.; Channel AP, 3.5788 Mc.; Channel AQ, 3.5788 Mc.; Channel AR, 3.5788 Mc.; Channel AS, 3.5788 Mc.; Channel AT, 3.5788 Mc.; Channel AU, 3.5788 Mc.; Channel AV, 3.5788 Mc.; Channel AW, 3.5788 Mc.; Channel AX, 3.5788 Mc.; Channel AY, 3.5788 Mc.; Channel AZ, 3.5788 Mc.; Channel BA, 3.5788 Mc.; Channel BB, 3.5788 Mc.; Channel BC, 3.5788 Mc.; Channel BD, 3.5788 Mc.; Channel BE, 3.5788 Mc.; Channel BF, 3.5788 Mc.; Channel BG, 3.5788 Mc.; Channel BH, 3.5788 Mc.; Channel BI, 3.5788 Mc.; Channel BJ, 3.5788 Mc.; Channel BK, 3.5788 Mc.; Channel BL, 3.5788 Mc.; Channel BM, 3.5788 Mc.; Channel BN, 3.5788 Mc.; Channel BO, 3.5788 Mc.; Channel BP, 3.5788 Mc.; Channel BQ, 3.5788 Mc.; Channel BR, 3.5788 Mc.; Channel BS, 3.5788 Mc.; Channel BT, 3.5788 Mc.; Channel BU, 3.5788 Mc.; Channel BV, 3.5788 Mc.; Channel BW, 3.5788 Mc.; Channel BX, 3.5788 Mc.; Channel BY, 3.5788 Mc.; Channel BZ, 3.5788 Mc.; Channel CA, 3.5788 Mc.; Channel CB, 3.5788 Mc.; Channel CC, 3.5788 Mc.; Channel CD, 3.5788 Mc.; Channel CE, 3.5788 Mc.; Channel CF, 3.5788 Mc.; Channel CG, 3.5788 Mc.; Channel CH, 3.5788 Mc.; Channel CI, 3.5788 Mc.; Channel CJ, 3.5788 Mc.; Channel CK, 3.5788 Mc.; Channel CL, 3.5788 Mc.; Channel CM, 3.5788 Mc.; Channel CN, 3.5788 Mc.; Channel CO, 3.5788 Mc.; Channel CP, 3.5788 Mc.; Channel CQ, 3.5788 Mc.; Channel CR, 3.5788 Mc.; Channel CS, 3.5788 Mc.; Channel CT, 3.5788 Mc.; Channel CU, 3.5788 Mc.; Channel CV, 3.5788 Mc.; Channel CW, 3.5788 Mc.; Channel CX, 3.5788 Mc.; Channel CY, 3.5788 Mc.; Channel CZ, 3.5788 Mc.; Channel DA, 3.5788 Mc.; Channel DB, 3.5788 Mc.; Channel DC, 3.5788 Mc.; Channel DD, 3.5788 Mc.; Channel DE, 3.5788 Mc.; Channel DF, 3.5788 Mc.; Channel DG, 3.5788 Mc.; Channel DH, 3.5788 Mc.; Channel DI, 3.5788 Mc.; Channel DJ, 3.5788 Mc.; Channel DK, 3.5788 Mc.; Channel DL, 3.5788 Mc.; Channel DM, 3.5788 Mc.; Channel DN, 3.5788 Mc.; Channel DO, 3.5788 Mc.; Channel DP, 3.5788 Mc.; Channel DQ, 3.5788 Mc.; Channel DR, 3.5788 Mc.; Channel DS, 3.5788 Mc.; Channel DT, 3.5788 Mc.; Channel DU, 3.5788 Mc.; Channel DV, 3.5788 Mc.; Channel DW, 3.5788 Mc.; Channel DX, 3.5788 Mc.; Channel DY, 3.5788 Mc.; Channel DZ, 3.5788 Mc.; Channel EA, 3.5788 Mc.; Channel EB, 3.5788 Mc.; Channel EC, 3.5788 Mc.; Channel ED, 3.5788 Mc.; Channel EE, 3.5788 Mc.; Channel EF, 3.5788 Mc.; Channel EG, 3.5788 Mc.; Channel EH, 3.5788 Mc.; Channel EI, 3.5788 Mc.; Channel EJ, 3.5788 Mc.; Channel EK, 3.5788 Mc.; Channel EL, 3.5788 Mc.; Channel EM, 3.5788 Mc.; Channel EN, 3.5788 Mc.; Channel EO, 3.5788 Mc.; Channel EP, 3.5788 Mc.; Channel EQ, 3.5788 Mc.; Channel ER, 3.5788 Mc.; Channel ES, 3.5788 Mc.; Channel ET, 3.5788 Mc.; Channel EU, 3.5788 Mc.; Channel EV, 3.5788 Mc.; Channel EW, 3.5788 Mc.; Channel EX, 3.5788 Mc.; Channel EY, 3.5788 Mc.; Channel EZ, 3.5788 Mc.; Channel FA, 3.5788 Mc.; Channel FB, 3.5788 Mc.; Channel FC, 3.5788 Mc.; Channel FD, 3.5788 Mc.; Channel FE, 3.5788 Mc.; Channel FF, 3.5788 Mc.; Channel FG, 3.5788 Mc.; Channel FH, 3.5788 Mc.; Channel FI, 3.5788 Mc.; Channel FJ, 3.5788 Mc.; Channel FK, 3.5788 Mc.; Channel FL, 3.5788 Mc.; Channel FM, 3.5788 Mc.; Channel FN, 3.5788 Mc.; Channel FO, 3.5788 Mc.; Channel FP, 3.5788 Mc.; Channel FQ, 3.5788 Mc.; Channel FR, 3.5788 Mc.; Channel FS, 3.5788 Mc.; Channel FT, 3.5788 Mc.; Channel FU, 3.5788 Mc.; Channel FV, 3.5788 Mc.; Channel FW, 3.5788 Mc.; Channel FX, 3.5788 Mc.; Channel FY, 3.5788 Mc.; Channel FZ, 3.5788 Mc.; Channel GA, 3.5788 Mc.; Channel GB, 3.5788 Mc.; Channel GC, 3.5788 Mc.; Channel GD, 3.5788 Mc.; Channel GE, 3.5788 Mc.; Channel GF, 3.5788 Mc.; Channel GH, 3.5788 Mc.; Channel GI, 3.5788 Mc.; Channel GJ, 3.5788 Mc.; Channel GK, 3.5788 Mc.; Channel GL, 3.5788 Mc.; Channel GM, 3.5788 Mc.; Channel GN, 3.5788 Mc.; Channel GO, 3.5788 Mc.; Channel GP, 3.5788 Mc.; Channel GQ, 3.5788 Mc.; Channel GR, 3.5788 Mc.; Channel GS, 3.5788 Mc.; Channel GT, 3.5788 Mc.; Channel GU, 3.5788 Mc.; Channel GV, 3.5788 Mc.; Channel GW, 3.5788 Mc.; Channel GX, 3.5788 Mc.; Channel GY, 3.5788 Mc.; Channel GZ, 3.5788 Mc.; Channel HA, 3.5788 Mc.; Channel HB, 3.5788 Mc.; Channel HC, 3.5788 Mc.; Channel HD, 3.5788 Mc.; Channel HE, 3.5788 Mc.; Channel HF, 3.5788 Mc.; Channel HG, 3.5788 Mc.; Channel HH, 3.5788 Mc.; Channel HI, 3.5788 Mc.; Channel HJ, 3.5788 Mc.; Channel HK, 3.5788 Mc.; Channel HL, 3.5788 Mc.; Channel HM, 3.5788 Mc.; Channel HN, 3.5788 Mc.; Channel HO, 3.5788 Mc.; Channel HP, 3.5788 Mc.; Channel HQ, 3.5788 Mc.; Channel HR, 3.5788 Mc.; Channel HS, 3.5788 Mc.; Channel HT, 3.5788 Mc.; Channel HU, 3.5788 Mc.; Channel HV, 3.5788 Mc.; Channel HW, 3.5788 Mc.; Channel HX, 3.5788 Mc.; Channel HY, 3.5788 Mc.; Channel HZ, 3.5788 Mc.; Channel IA, 3.5788 Mc.; Channel IB, 3.5788 Mc.; Channel IC, 3.5788 Mc.; Channel ID, 3.5788 Mc.; Channel IE, 3.5788 Mc.; Channel IF, 3.5788 Mc.; Channel IG, 3.5788 Mc.; Channel IH, 3.5788 Mc.; Channel II, 3.5788 Mc.; Channel IJ, 3.5788 Mc.; Channel IK, 3.5788 Mc.; Channel IL, 3.5788 Mc.; Channel IM, 3.5788 Mc.; Channel IN, 3.5788 Mc.; Channel IO, 3.5788 Mc.; Channel IP, 3.5788 Mc.; Channel IQ, 3.5788 Mc.; Channel IR, 3.5788 Mc.; Channel IS, 3.5788 Mc.; Channel IT, 3.5788 Mc.; Channel IU, 3.5788 Mc.; Channel IV, 3.5788 Mc.; Channel IW, 3.5788 Mc.; Channel IX, 3.5788 Mc.; Channel IY, 3.5788 Mc.; Channel IZ, 3.5788 Mc.; Channel JA, 3.5788 Mc.; Channel JB, 3.5788 Mc.; Channel JC, 3.5788 Mc.; Channel JD, 3.5788 Mc.; Channel JE, 3.5788 Mc.; Channel JF, 3.5788 Mc.; Channel JG, 3.5788 Mc.; Channel JH, 3.5788 Mc.; Channel JI, 3.5788 Mc.; Channel JJ, 3.5788 Mc.; Channel JK, 3.5788 Mc.; Channel JL, 3.5788 Mc.; Channel JM, 3.5788 Mc.; Channel JN, 3.5788 Mc.; Channel JO, 3.5788 Mc.; Channel JP, 3.5788 Mc.; Channel JQ, 3.5788 Mc.; Channel JR, 3.5788 Mc.; Channel JS, 3.5788 Mc.; Channel JT, 3.5788 Mc.; Channel JU, 3.5788 Mc.; Channel JV, 3.5788 Mc.; Channel JW, 3.5788 Mc.; Channel JX, 3.5788 Mc.; Channel JY, 3.5788 Mc.; Channel JZ, 3.5788 Mc.; Channel KA, 3.5788 Mc.; Channel KB, 3.5788 Mc.; Channel KC, 3.5788 Mc.; Channel KD, 3.5788 Mc.; Channel KE, 3.5788 Mc.; 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Channel QS, 3.5788 Mc.; Channel QT, 3.5788 Mc.; Channel QU, 3.5788 Mc.; Channel QV, 3.5788 Mc.; Channel QW, 3.5788 Mc.; Channel QX, 3.5788 Mc.; Channel QY, 3.5788 Mc.; Channel QZ, 3.5788 Mc.; Channel RA, 3.5788 Mc.; Channel RB, 3.5788 Mc.; Channel RC, 3.5788 Mc.; Channel RD, 3.5788 Mc.; Channel RE, 3.5788 Mc.; Channel RF, 3.5788 Mc.; Channel RG, 3.5788 Mc.; Channel RH, 3.5788 Mc.; Channel RI, 3.5788 Mc.; Channel RJ, 3.5788 Mc.; Channel RK, 3.5788 Mc.; Channel RL, 3.5788 Mc.; Channel RM, 3.5788 Mc.; Channel RN, 3.5788 Mc.; Channel RO, 3.5788 Mc.; Channel RP, 3.5788 Mc.; Channel RQ, 3.5788 Mc.; Channel RR, 3.5788 Mc.; Channel RS, 3.5788 Mc.; Channel RT, 3.5788 Mc.; Channel RU, 3.5788 Mc.; Channel RV, 3.5788 Mc.; Channel RW, 3.5788 Mc.; Channel RX, 3.5788 Mc.; Channel RY, 3.5788 Mc.; Channel RZ, 3.5788 Mc.; Channel SA, 3.5788 Mc.; Channel SB, 3.5788 Mc.; Channel SC, 3.5788 Mc.; Channel SD, 3.5788 Mc.; Channel SE, 3.5788 Mc.; Channel SF, 3.5788 Mc.; Channel SG, 3.5788 Mc.; Channel SH, 3.5788 Mc.; Channel SI, 3.5788 Mc.; Channel SJ, 3.5788 Mc.; Channel SK, 3.5788 Mc.; Channel SL, 3.5788 Mc.; Channel SM, 3.5788 Mc.; Channel SN, 3.5788 Mc.; Channel SO, 3.5788 Mc.; Channel SP, 3.5788 Mc.; Channel SQ, 3.5788 Mc.; Channel SR, 3.5788 Mc.; Channel SS, 3.5788 Mc.; Channel ST, 3.5788 Mc.; Channel SU, 3.5788 Mc.; Channel SV, 3.5788 Mc.; Channel SW, 3.5788 Mc.; Channel SX, 3.5788 Mc.; Channel SY, 3.5788 Mc.; Channel SZ, 3.5788 Mc.; Channel TA, 3.5788 Mc.; Channel TB, 3.5788 Mc.; Channel TC, 3.5788 Mc.; Channel TD, 3.5788 Mc.; Channel TE, 3.5788 Mc.; Channel TF, 3.5788 Mc.; Channel TG, 3.5788 Mc.; Channel TH, 3.5788 Mc.; Channel TI, 3.5788 Mc.; Channel TJ, 3.5788 Mc.; Channel TK, 3.5788 Mc.; Channel TL, 3.5788 Mc.; Channel TM, 3.5788 Mc.; Channel TN, 3.5788 Mc.; Channel TO, 3.5788 Mc.; Channel TP, 3.5788 Mc.; Channel TQ, 3.5788 Mc.; Channel TR, 3.5788 Mc.; Channel TS, 3.5788 Mc.; Channel TT, 3.5788 Mc.; Channel TU, 3.5788 Mc.; Channel TV, 3.5788 Mc.; Channel TW, 3.5788 Mc.; Channel TX, 3.5788 Mc.; Channel TY, 3.5788 Mc.; Channel TZ, 3.5788 Mc.; Channel UA, 3.5788 Mc.; Channel UB, 3.5788 Mc.; Channel UC, 3.5788 Mc.; Channel UD, 3.5788 Mc.; Channel UE, 3.5788 Mc.; Channel UF, 3.5788 Mc.; Channel UG, 3.5788 Mc.; Channel UH, 3.5788 Mc.; Channel UI, 3.5788 Mc.; Channel UJ, 3.5788 Mc.; Channel UK, 3.5788 Mc.; Channel UL, 3.5788 Mc.; Channel UM, 3.5788 Mc.; Channel UN, 3.5788 Mc.; Channel UO, 3.5788 Mc.; Channel UP, 3.5788 Mc.; Channel UQ, 3.5788 Mc.; Channel UR, 3.5788 Mc.; Channel US, 3.5788 Mc.; Channel UT, 3.5788 Mc.; Channel UY, 3.5788 Mc.; Channel UZ, 3.5788 Mc.; Channel VA, 3.5788 Mc.; Channel VB, 3.5788 Mc.; Channel VC, 3.5788 Mc.; Channel VD, 3.5788 Mc.; Channel VE, 3.5788 Mc.; Channel VF, 3.5788 Mc.; Channel VG, 3.5788 Mc.; Channel VH, 3.5788 Mc.; Channel VI, 3.5788 Mc.; Channel VJ, 3.5788 Mc.; Channel VK, 3.5788 Mc.; Channel VL, 3.5788 Mc.; Channel VM, 3.5788 Mc.; Channel VN, 3.5788 Mc.; Channel VO, 3.5788 Mc.; Channel VP, 3.5788 Mc.; Channel VQ, 3.5788 Mc.; Channel VR, 3.5788 Mc.; Channel VS, 3.5788 Mc.; Channel VT, 3.5788 Mc.; Channel VU, 3.5788 Mc.; Channel VV, 3.5788 Mc.; Channel VW, 3.5788 Mc.; Channel VX, 3.5788 Mc.; Channel VY, 3.5788 Mc.; Channel VZ, 3.5788 Mc.; Channel WA, 3.5788 Mc.; Channel WB, 3.5788 Mc.; Channel WC, 3.5788 Mc.; Channel WD, 3.5788 Mc.; Channel WE, 3.5788 Mc.; Channel WF, 3.5788 Mc.; Channel WG, 3.5788 Mc.; Channel WH, 3.5788 Mc.; Channel WI, 3.5788 Mc.; Channel WJ, 3.5788 Mc.; Channel WK, 3.5788 Mc.; Channel WL, 3.5788 Mc.; Channel WM, 3.5788 Mc.; Channel WN, 3.5788 Mc.; Channel WO, 3.5788 Mc.; Channel WP, 3.5788 Mc.; Channel WQ, 3.5788 Mc.; Channel WR, 3.5788 Mc.; Channel WS, 3.5788 Mc.; Channel WT, 3.5788 Mc.; Channel WU, 3.5788 Mc.; Channel WV, 3.5788 Mc.; Channel WX, 3.5788 Mc.; Channel WY, 3.5788 Mc.; Channel WZ, 3.5788 Mc.; Channel XA, 3.5788 Mc.; Channel XB, 3.5788 Mc.; Channel XC, 3.5788 Mc.; Channel XD, 3.5788 Mc.; Channel XE, 3.5788 Mc.; Channel XF, 3.5788 Mc.; Channel XG, 3.5788 Mc.; Channel XH, 3.5788 Mc.; Channel XI, 3.5788 Mc.; Channel XJ, 3.5788 Mc.; Channel XK, 3.5788 Mc.; Channel XL, 3.5788 Mc.; Channel XM, 3.5788 Mc.; Channel XN, 3.5788 Mc.; Channel XO, 3.5788 Mc.; Channel XP, 3.5788 Mc.; Channel XQ, 3.5788 Mc.; Channel XR, 3.5788 Mc.; Channel XS, 3.5788 Mc.; Channel XT, 3.5788 Mc.; Channel XU, 3.5788 Mc.; Channel XV, 3.5788 Mc.; Channel XW, 3.5788 Mc.; Channel XX, 3.5788 Mc.; Channel XY, 3.5788 Mc.; Channel XZ, 3.5788 Mc.; Channel YA, 3.5788 Mc.; Channel YB, 3.5788 Mc.; Channel YC, 3.5788 Mc.; Channel YD, 3.5788 Mc.; Channel YE, 3.5788 Mc.; Channel YF, 3.5788 Mc.; Channel YG, 3.5788 Mc.; Channel YH, 3.5788 Mc.; Channel YI, 3.5788 Mc.; Channel YJ, 3.5788 Mc.; Channel YK, 3.5788 Mc.; Channel YL, 3.5788 Mc.; Channel YM, 3.5788 Mc.; Channel YN, 3.5788 Mc.; Channel YO, 3.5788 Mc.; Channel YP, 3.5788 Mc.; Channel YQ, 3.5788 Mc.; Channel YR, 3.5788 Mc.; Channel YS, 3.5788 Mc.; Channel YT, 3.5788 Mc.; Channel YU, 3.5788 Mc.; Channel YV, 3.5788 Mc.; Channel YW, 3.5788 Mc.; Channel YX, 3.5788 Mc.; Channel YY, 3.5788 Mc.; 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SILENT KEY

It is with deep regret that we record the passing of:

VK2KAP—Vic. Holmes.

VK3ACA—Clive Hughes.

VK3YV—Howard Wohlers.

Mr. Andrews said that manufacturers of communication equipment had been charged with the task of producing more and more. However, a change was coming over the scene. A further pointer to what we may expect in the future was that, in the U.S.A. at the present time, the complete sound channel for

colour l.v. receivers may be purchased (in large lots) for \$3.50 each.

In moving the vote of thanks to the lecturer Rex 2YA said Mr. Andrews had illustrated by his very first lecture what wonderful opportunities awaited the younger generation who were about to enter the field of electronics. He will be the subject of a lecture by the Education Officer (Harold 2AAH) has lined up Syd 2SG to give the lecture at the October meeting, the subject being "Television Signal Generation." Syd has had many years' practical experience in the field of television. The lecture for November will be given by Ted Bandstand, an A.W.M. engineer, on "Solid State Sideband."

Visitors at the meeting included John ZL

presented themselves for the handing over of various prizes and certificates they had won as a result of their studies. A "competition" conducted during the evening on behalf of the Y.R.S. was won by 2WP.

A group of individuals organised by Mona 2AXS and assisted by Council member, Hebe 203X, and XYLs of Council members 22RD and 22CH, have commenced a new initiative at Wireless Institute Centre—providing (for a very small charge) afternoon teas on the second and fourth Saturday of each month. These are served between 3 and 4 p.m. to coincide with the opening of the disposal store. The first effort proved very popular and the larger than normal number of people very quickly took care of the scones, strawberry jam and cream. Ladies who would like to assist and at the same time do a small QSO with some of the other ladies are asked to phone Hebe on 25-5600. OM's could help to make this venture successful by patronising it. In addition to assisting the financially, financial aid is commended this as an excellent opportunity for members and their XYLs to have a social chat over a "cuppa".

Continuing with social matters, Ivan 2AIM reported that the theatre party he had been organising since Sept. to see the film "My Darling Clementine" had been a success. Over 100 tickets, with 70 people booked for the theatre supper after the show. It is hoped that another party will be arranged when the opportunity occurs.

Reference was made at the August general meeting that a contest of portable QSO stations in this year's R.D. Contest tallied 140. It will be interesting to see just how many of this 140 have done the right thing by their Division and entered a log. With full support it was thought we would have a good chance of landing the trophy for the first time. However, if some of you have done what many have done in other years—left it to the other bloke—then we will have two chances of winning our own and Buckey's.

We understand that the Westlakes Radio Club has been recommended for the 1965 Institute of Radio and Electrical Engineers Efficiency Award. This is done annually to the most efficient Y.R.S. Club, and we are sure that we echo the sentiments of all when we say "heartiest congratulations".

VK2 DIVISION

CRYSTAL LIST

5030, 5035, 5127.5, 5165, 5205, 5235, 5295, 5295, 5327.5, 5335, 5360, 5385, 5435, 5437.5, 5485, 5545, 5582.5, 5587.5, 5645, 5660, 5687.5, 5730, 5740, 5780, 5782.5, 5815, 5820, 5860, 5892.5, 5907.5, 5950, 5955, 5995 kc. In FT243 holders, \$1 each or in groups of five for \$4. 6 Mc. range next month.

Goods listed for sale by the VK2 Division are available to W.I.A. members of any Division. Please address inquiries to Radio Equipment Store, 14 Atchison St., Crows Nest, N.S.W.

LECTURE TAPES

No. 11—V.h.f. History, no slides or diagrams. (Ed. Tilton, W1-HDQ).

No. 12—Quad Antennae, 68 min., 20 slides. (H. Burtoff, VK2AAH and S. Molen, VK2SG).

No. 13—Linear Amplifiers, 1 hr., 17 slides. (Bob Wilson).

No. 14—Transistorised R.f. Converters, 1 hr., 12 slides. (Sid Molen, VK2SG).

No. 15—The Spirit of Discovery, 55 min., no slides. Edwin H. Armstrong. (Recorded by H. Burtoff).

Details in August "A.R." page 19. Inquiries to Education Officer, Wireless Institute Centre, Crows Nest, N.S.W.

Tim 22TM and Joe 2200 landed back in Sydney about the end of August after a month's touring around Australia, covering nearly 10,000 miles in the process. At time of writing we had not sighted Joe, but the face fungus sported by Tim on his chin, and us think of two possibilities—he is hiding from someone, or he is preparing for a job as Santa Claus over the Christmas season.

Gerald Sablin, one of the "pillars" on whose broad shoulders rests our Publications Department, has sent out an SOS for someone to give a few hours of his time, for one night a month, from about 6.30 p.m. Gerald would be delighted if you knocked him off his perch with offers of course) to the Secretary, W.I.C., 14 Atchison St., Crows Nest, N.S.W.

To those who make a practice of reading only the disposal page of your Bulletin and then tossing it aside, may we suggest you dig it out of the waste paper bin, and read (in the July and August issues, anyway) all about the very handy publications available merely by dropping a line (accompanied by the necessary offers of course) to the Secretary, W.I.C., 14 Atchison St., Crows Nest, N.S.W.

The publication of this issue of "A.R." will probably coincide with two important Conventions that are set down for the Six-Hour week ending 10th September, and the 10th October. Our friends of the Hunter Branch and the South-West Zone have been busily preparing for some time, and we trust that both events will be blessed with fine weather and large attendances. 73, Ivan 2AIM.

HUNTER BRANCH

Spring is sprung.

The grass is green.

I wonder where

The signals lie?

Yes, I wonder. Since the R.D. Contest hardly a thing has been heard of from V.h.f. bands. Where have all the operators gone? Deserted bands can do no good for the Amateur cause since it is a well known fact that band occupancy determines the future of a band. The I.T.U. Conference cannot be far away. To ensure that we still have our hands after this Conference, there is a number of things to be followed. Firstly, it is essential to use all the frequencies we have. And this applies equally to v.h.f. and h.f. allocations. That comes from 146 to 148 is just waiting for someone to use it. If we don't, someone else will. As for 148 fm., use it as a calling frequency by all means, but do not be made to rue the exclusion of other two metre operation. Top band, too, deserves more attention and is the best band for the 148 fm. band. The Russians lost their 160 metre band because it was not used and very few countries have the 146-148 segment. Let's grab it while there is still time.

Now, secondly, we must have a representative at Geneva when the Conference is called. If your donation is not being made to the fund, then make it now—as next month or next year may be too late.

Local Amateurs were shocked to hear of the death of Vic 2AKP last month. Vic had been living in retirement at Balmoral on the lake and was a daily user of the 80 mc band. This son-in-law, 2230, was a very close friend in him an interest in v.h.f. and he was a listener on this band. Vic became an Amateur 25 years ago when he was a railway employee at Glen Innes and he was well known in many places in the State where he made use of his call. All who knew Vic will mourn his passing.

On the Eastern side of the lake where the grass grows greener than anywhere else, according to those who have been there, big trouble is afoot. Belmont Bob has a broken down tx which defies all the experts to make it go. Added to this, his close neighbour, Mon, is awaking his call sign. It appears that as soon as Bob's rig is ready he will have to draw up a roster of operating time. Two 130-watt rigs within 50 metres will cause some mutual interference perhaps. The solution is quite clear—it's the ducttalk for Bob. He tells me that he has a ruffie tied in his pair of ducks for Christmas so perhaps he'll do all right after all.

The Sept. meeting, the first one, was not as well attended as the meetings of last year, but those who didn't go really missed an outstanding lecture given by Warren O'Rourke, who is a technician for one of the major cities there. Warren brought along almost every type of carphone available and displayed them all on a large lecture bench in Room 6. The gear shown ranged from an early Pye Reporter to the very latest U.H.F. radiophone. While describing the equipment, Warren outlined the most common types of each design and gave those present details of conversion of the popular phones for Amateur use. The lecture was made more interesting by interspersed jokes for over an hour after the lecture and questions came from all angles. This was a fitting

OBITUARY

V. A. (VIC.) HOLMES, VK2AKP

We regret to record the death of Vic. Holmes, VK2AKP, who passed away to world of spirits on the 24th August. Vic was one of our well known county members, and for many years had resided at Maitland.

It was while living in the Maitland district that he made a name both for himself and the Amateur movement in a time of serious emergency. During the 1940s, based on the Newcastle Victoria, he organised an emergency communication work of a high order that he was given a letter of commendation by the N.S.W. Commissioner of Police.

Vic. is survived by his wife and family (Kev. Watson, VK2KZK, being a son-in-law), and to them we offer the sympathy of all members of the N.S.W. Division.

GORDON WEYNTON, VK3XU

When Gordon Weynton passed away last month after an incurable illness of more than 2½ years, the ranks of the Amateur Service lost a man whose bravery and courage went beyond the call of duty and whose activities as a prisoner of war in Changi during World War II, whilst bringing untold pleasure to his fellow prisoners, at the risk of his own life, were little known to those outside.

Gordon, as an accountant and business executive in civil life, rallied to the cause and enlisted in the ranks at the beginning of World War II, and rose to the rank of Sergeant with the 8th Division Signals and moved to Malaya. After the war he rose to the rank of Lieutenant and was taken prisoner when Singapore fell in 1942.

His experience in Amateur Radio since the 1920s gave Gordon the urge to provide the prisoners at Sandakan Prison Camp news of events outside. At severe risk to his own life, and at the assistance of several other prisoners and outside sympathisers, an organised underground resistance movement was set up. Various pieces of equipment were obtained and put together as a radio receiver. Special chemical rectifiers were procured to Malaya, and the camp's a.c. mains were converted to d.c. and the receiver commenced to provide news of the prisoners from the B.B.C. on 4th November, 1942.

Construction of a transmitter was commenced by which it was hoped to guide a rescue force to the camp. Discovery of some of the components put an end to this project and resulted in Gordon and others being subjected to torture and privation. Gordon Weynton in these years could not begin to be understood but suffice it to say that he remained unbroken in spirit and its whereabouts was never divulged.

After being charged and tried, Gordon was sentenced to 10 years in gaol. He became so ill he was sent to Changi Prison and after recovery was sent again to gaol where he remained until the end of the war. In October, 1946, he was sent as a witness to the Tokyo War Crimes Trials.

Despite experiences too foul to relate, Gordon settled back to civilian life again, becoming Mayor of Castlemaine (1948-51). He was an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangeratta Woollen Mills, an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangeratta Woollen Mills, an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangeratta Woollen Mills, an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangeratta Woollen Mills.

Although a busy man, Gordon found time to take up an active post as Vice-President and Assistant Secretary of the Federal Executive of the W.I.A. He conducted these posts with the same zest and energy as he applied to other aspects of his life. His calm disposition and experienced deliberations were an asset to the Executive of the Wireless Institute of Australia and he was much to be missed in the 20 years and whose interests were always his interests.

It is with great sadness that we record the death of Gordon Weynton, VK3XU, his due time—a man who did so much and suffered so much in order that others could live.

support for the vote of thanks moved by Frank 2ZFX.

In an attempt to beat Dave 2AWZ at his own game, your humble scribe made and described a d.f. aerial for 40 mx. This is a quite simple device but the originator of the design says it gives results which is all that matters. From reports it looks as if there will be some opposition in future fox hunts on 40 mx.

Just in case you get this copy early enough, please remember that there is **no meeting** in October. The next meeting will be on Nov. 4 when Gordon 2ZSG will give all the latest clues on converting Command receivers. Gordon has had a great deal of success with these units and his ideas for getting the most out of them are quite revolutionary in some respects. Don't miss this lecture—it's a beauty.

A visitor to the Branch last month was Andrew 1RD, who is well known to listeners to the Morse practice service. He was accompanied by David 2BSC who is at present in Canberra. Also visiting on two occasions during the month were Gordon 2BGH and Steve 2ZG. The two provided plenty of activity at both 2 and 160 metres for the few hours they were in Newcastle. Stations testing on 2 mxf.m. are interesting and Phil 2TX and Doug 2ASA have both been heard at good strength on 2 mxf.m. Both stations have a strong enough signal to be heard locally, this is a good mark of reference.

By the time you read this, Phil will be on his way to London via the Bombay-London road. I wonder will he be working the DX mobile? Phil 2XT is still going strong with DX mobiles and now has over 108 countries. He says each succeeding one is ten times as hard to find as the last one. He has a few good news on v.h.f. aerials. If you'd like to know more, ask at the next meeting and hear all about it. And please don't forget that there is no meeting in October—the next one is on November 1st. See you at the usual place, Room 6, Clegg Building, Newcastle Tech. at 8 p.m. See you there. 73, 2AXX.

CENTRAL COAST BRANCH

On August 19 the members of the Central Coast Branch enjoyed an evening with Dave 2AWZ, who gave a very lively and interesting talk on fox hunting. There were 27 present including some visitors from Newcastle and

Sydney. Dave had his "Fox Box" with him and this contained some most unusual gadgets far removed from foxes, but still an important part of the game. One such item was an alarm clock (almost indispensable) and a cake of bon ami! He emphasised that it is necessary to understand the psychology of the fox, who gets up to all sorts of dodges to mislead the hunters. The fox has a bearing with a compass before starting off is also very important. All in all, it was a very good evening and everyone appreciated Dave's efforts in travelling up from Sydney.

Ernie ZEH is off on an ocean voyage around the South Pacific in a few days and doubt will return with a few choice anecdotes. Phil 2TX and his XYL Rene, leave the middle of Sept. for an extended round the world tour. Highlight of their trip will be a bus tour from India to London. They expect to meet their travelling son, Mark, en route and have a few days with him. They have many interesting side trips planned and will be the envy of a good many people. Max, No. 1 son, will hold down the fort while they are away.

Don't forget the annual Field Day held at Gosford around the middle of February. A definite date will be announced later. 73, Mona 2AXS.

BLUE MOUNTAINS BRANCH

For the August monthly meeting at Lawson yours truly showed a half hour movie of various points of interest taken on my way home from the States. For a change it was very hard to get a word in with everybody present. The club h.f. antenna is still on the ground, but I understand that it could be up for the next meeting. No crack fellas. I know that conditions have not always been right.

Not much on the grape vine this month. Did hear that the Katoomba boys have found a supply of 6 mx net rocks. Well so much for our private line on 6 Trev. Allen 22FZ is on the air with a little more power, a 522 and a converter for receiver, and seems to be working more stations. A couple of the old stations are coming up on 2 mhz soon, more info as it comes through. Seems like the old hill is starting to buzz just like the old days. Keep it up fellas.

I hear Jack 2NC is likely to be back on 2, so maybe with the right bait and tide you might catch him. Jack is also window shop-

ping for a.s.b. gear, not sure what for maybe
a.s.b. on 432? Ken 2AYN and Graham 2ZGW
have been active, watch it chaps. Derick 2ND
straightened out 2WI on behalf of the Branch
the other Sunday. Thanks Derick, and while
I am on holidays trying to catch cotton picken
flathead, Trev 2TM will be helping out with
the Branch call back on Sundays. Well fellas
the Scout Jamboree on the Air is just around
the corner. I know you will assist again as
in the past. Until the next meeting at Lawson,
73, Ron 2ADA.

VICTORIA

WESTERN ZONE

Once again there does not appear to be much activity in the Zone, however a few contacts are being made on v.h.f. and 20 m.c. The usual stations appear on 3620 kc. at 1000 hrs. G.M.T. each Wednesday evening on the Western Zone net. We had the pleasure of hearing Merv J4FO on the net frequency during the past month. Merv had moved to a new QTH at Wodonga some 12 months ago and very little had been heard of him.

The R.D. Contest proved to be an enjoyable week-end with most Zone members participating. At least three members made one hundred plus contacts. John 3AFU, Harry 3ZX active on a.s.b. Chas 3IB active on c.w., Bill 3AKW, Bert 3EF and Herb 3NN being heard on a.m.

Alex SADA, who is now a student at a Melbourne university, joined the net during the term holidays as a visitor to 3ZX's QTH. This proved to be the first phone contact Alex had made. We look forward to hearing you again Alex. During the past few weeks your scribe has had the pleasure of visiting a number of Western Zone shacks, namely Bob 3ARM and Herb 3NN. It was interesting to note how Herb 3NN and son Garry generate an s.s.b. signal on 2 mx and it certainly works f. 73, Harry 3ZX.

SOUTH AUSTRALIA

The monthly general meeting of the VKS Division was held in the club room on the fourth Tuesday, 14 August, at a standing room gathering only. In fairness to my legion of dissatisfied readers in VK4 and VK8, I feel that I should point out that the reason for the standing room only was really due to the fact that the caretaker, for some reason or other, only put out half the usual number of chairs, and therefore it was a case of stand of 50, home.

Very little business of any importance was transacted, although I must refer to the fact that among the welcome visitors was Marge ZL3TC squired by that Gay Lothario, Gilbert 5GX, who happened to be visiting her sister in VK5 and decided to drop into the meeting just to see what makes VK5 tick.

The meeting took the form of a display of members' gear and the following members rallied around and gave a short description of their gear and assisted in the display. Barry 52AU, a 6 mx transistorised tx; Carl 5CL, a 6 mx transistorised tx into an existing 501; Rex 5KX, an s.s.b. and a third 501; Trevor 5ZTM, a 2 and 6 mx v.f.o.; Rex 5RG, a two terminal oscillator; Bob 5DXZ, two regulated power supplies; Rex 5DO, a hybrid tx; Heinz 5GR, a protected transistor power supply; Fred 5CJ, a 600 w. converter; Trevor 5ZIS, a 146 Mc. f.m. transmitter; and Geoff 5TY, a communication 10 tx.

The awards were for three sections, v.h.f., instruments, and general. The v.h.f. award went to Barry 5ZAU, the instruments went to Bob 5ZDX, and as there were only two entries in the general award, and both of these were Council members, Ron 5KS and Geoff 5TY, and thus not permitted to compete, there was no general award. To these members and all who made the display possible, goes the thanks of all present for an enjoyable and

I was a little upset at not being able to describe the entry of Geoff STY, mainly be-

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5	12	30c	50 450
5	18	35c	54
8	10	30c	64
8	15	35c	100
8	350	45c	100
8	325	58c	100
10	3	35c	100
10	15	35c	100
10	25	35c	100
16	10	35c	100
16	300	50c	100
16	325	75c	125
20	200	65c	150
24	250	65c	200
24	500	97c	200
25	3	35c	250
25	12	35c	250
25	18	35c	250
25	35	35c	250
25	50	45c	500
25	300	62c	500
25	600	98c	500
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cause during his description of the rx he said that he had kept an account of just how much the project had cost him and swore the meeting to secrecy, just for safety's sake. Naturally, I can't remember the exact amount, but I can't say, but if by any strange chance Christine should be reading this, I would suggest that she go out immediately and buy three half-dozens or so hats and shoes, plus a couple of dresses and you-know-what, just to even up the books. When I was back to the basement, I found another hiding place for the milk money, etc.

A. I think he has found the present one!

A newly re-joined member, present at the meeting, was a Council member, Treasurer and Treasurer during the 1919-1930 period, who has been bitten again by the bug and is trying to get it out of his system, and, hopefully, a little rig on 40 mhz ere long. Welcome back OM.

Bob brought the house down with his short and to the point explanation of his dummy load on display. He walked to the table, picked up the "mystery container" and said: "This is a tin with some resistors" in it, a co-ax connector at one end, sealed at the other, I connect it to my tx and no noises come out. I get a sure-fire QRM. The cheers and applause could be heard for miles. Oh that some others would copy the device! (And be as brief—with their notes—Editor.)

Bob SZDX was another one to rock the meeting. When asked for his statement, he was using QAZ10 in his ham regulated power supplies and passing an amp, simply replied that they had been up-rated recently to 100 mhz and remained poker-faced despite the uproar!

Ron SKS disappointed me somewhat. He usually gets up and gives a presentation on display and shows something from his XYL's kitchen utensils which he has cunningly utilised in his hobby. This time, however, nothing was mentioned. Has she put on a buck, or have you lost your nerve, Ron?

The judges at the meeting for the awards were Brian SZNK, Neil SWL and Phil SKN. I usually don't like to give out awards, but decisions can only be made by those who give satisfaction. I was busy at the time or else I would have just said "I don't know".

Nobody could ever accuse me of being a gossip, nobody could accuse me of being a "nark" or even of cramping anybody's style. I did, did I not? I did, did I not? Phil SKN exchanged with Brenda SKT in the R.D. Contest? Well, if you did not, it was 59-288. How about it, Brenda? 88s indeed.

According to my reckoning, Bob SRG has been on the air since 1955, but was recently noticed back on 7 Mc, using the more conventional form of a.m. I can't see that any party to the gospel has been paid off, I doubt it.

My paragraph in the July issue of the "mag" re my figuring in the R.D. Contest receiving the same amount accused me of contacting SRG using "The Thing" brought forth a letter from a well-wisher—I think—who pointed out that I was not a radio amateur, but was cheated out of an extra three points in the score, anybody else would have been listed as five points instead of two. How can I win? (Well, this is MY excuse, tell me about Pansy being heard on s.s.b.—Editor)

Anyway, I did not enter the R.D. Contest this year, discretion proving the better part of valour. I did not want to risk any of all the week, but decided to rise from my bed of sickness and valiantly line up for the 10 minutes afternoons and evenings for free. Unfortunately I stubbed my toe on the end of the bed and when the commotion had died down, I was back to bed, completely better nine-tenths appeared from nowhere, and with that particular glint in her third eye that I have come to know so well, sweetly gestured to me to get back to bed, or no contest. I normally am a brave and valiant creature, but going on about forty years of experience, I have learned to take a hint, and did not surface for about an hour or so, with the R.D. Contest being just a memory. This was the first time I have ever been at least I live to fight again—in the contest I mean.

Cec SDZ is usually away during the week days and appears on the bands only at weekends, using an 813 and about 140 watts. A keen mobile, I had the pleasure of renewing acquaintance with him at the last contest, last Easter, but I don't think he was using the 813 in his mobile set-up!

I mixed up the names of various broadcast stations, etc. to be found right on 7 Mc, 5MM and 5TL were heard talking to a VK4 recently, who by the sound of his voice, was a female. The said VK4 was a female, a somewhat surprised tone of voice, on the amount of 7 Mc, being used by other than a male. After the surprise usually comes the frustration.

SZF reports having worked a VK0 in the R.D. Contest. Len reckons it was quite a bottle seeing as he did it on 3.5 Mc. This could be the understatement of the week I would think.

Vern SVB, "The Admiral" to you, recently spent quite a time looking for trouble in his s.s.b. rig. He was right, and eventually found that apparently the ducks had been eating steel wool, judging by the number of strands found inside. Fungus was eating the steel wool and getting sick, and remembering just where the rig came from, I can only assume that the XYL Bob SRG has been eating a packet of steel wool! He is always boasting of how he borrows his XYL's kitchen utensils for his experiments.

Now I know that I am an old fuddy-duddy. I also know that I always seem to get hold of the wrong end of the stick, but an emphatic statement recently in the magazine made it quite clear that G.M.T. time would be used in all W.I.A. contests until such a time as the world was re-organized. I noticed with some surprise at the meeting that our crabby Federal Councillor, Geoff STY, announced that the Ross Hull Contest would be held at the time of the convention. May I be so rude as to ask why? And also what is the difference between the Ross Hull and the Ross Hull? I noticed that Geoff STY told me if I have misinterpreted, possibly it is my age creeping in.

Two W.I.A. C.E.N. appointments to hand. Mr. T. Slater, SZBS, as assistant co-ordinator, and Mr. B. Roberts, SZNK, as technical officer. W.I.C.E. still marching forward with increasing numbers. I notice that the contest rosters that no name appears more than once, which is sufficient to show the present enthusiasm for the contest. I notice that in no small measure to the drive behind the co-ordinator, Geoff STY, but I won't because I am tired of meeting him at the convention. By the way, he will represent the W.I.A. (S.A. Division) at the E.F.S. Conference to be held at the Police Headquarters in Sept. With a lot of luck they might get enough on him to never let him out, if they need any help I will be only too pleased to come clean with it. I don't know what the contest is for for one thing. What about laying a charge, Christine?

For all well known members of the VKS fraternity, both said to be allergic to postage stamps and envelopes, were heard indulging in a c.w. contact the other night at about 9.30 m. I then contacted them and they both pride a couple of days later to receive a QSL card from a well known source reminding them that the name call the name of the contest or so. Their names are withheld to protect the guilty!

Comps SZF went all computerish recently and came up with the information that despite —or because of—the enormous score that Tubby SMO turned in at the 1965 R.D. Contest, VK6 would still have been in the top 100 if he turned out that way this year, because Tubby certainly won't be here for this year's R.D.—unless he works with an ON call rig.

The old rivalry between Jim SPO and Harry SMY was upped a bit because Jim was able to get about 45 contacts logged up before Harry got into his stride. Harry reckoned that he was a bit better in the R.D. Contest, was too much lucky to make up.

George SCV when last heard of in the direction of Alice Springs (GT) bottling down on his way to Alice Springs or somewhere in that area. Reports have it that he was a well-welcome at Woomera. The boys of 5WC that he was a well-welcome at Woomera. He seemed to think his time had been well spent however. Another "Blue Hills" George? Joe and I were talking about the time he quences these days with his Mosley beam, but is apparently having a bit of difficulty with 80 mhz. Tom (GT) bottling down in the process of being test runned, but it is too early as yet to assess results. Tom comes in pretty well, he gives credit to VK3 for its introduction, and says that the proof of the pudding, etc., etc., is enough.

Brian SCA again missing from the general meeting, but the excuse was a good one. He was in the throes of producing the next issue of the magazine. He had been asked to sort out the hundreds of contributions sent in by members for the said Journal. Get the message? He had to sort out contributions from members who what about it, chaps?

Fred 5MA, until recently of Renmark is now living in the area of no QRM, see Geoff STY that the area is not as hot as he has heard on the rig. Nice to hear some news concerning you Fred, long time no hear. He used to be a regular correspondent from Renmark. I don't know what he is doing now.

Have you been keeping an eye on the VK6 notes these days? Well, I have, and I cannot help but notice that the VK6 notes have a sense of humor and the length of his notes.

This, of course, going on my experience, will be the only part on the back he is ever likely to receive from any one, but never fear, the VK6 notes are good reading, and I am the first to admit it. Even if it hurts! 73, de SPS-Pansy to you.

WESTERN AUSTRALIA

Yo ho ho and a bottle of spa water, it's off we go to seek for buried watshinane or VK6 notes. I was in Perth on 14th and some of his students and staff recently took off for those well-known islands off the Geraldton coast. Naturally no modern expedition equipment was used, but the radio equipment and this one was no exception as Doc was well equipped to operate on 40 and 80 mhz. Their final refuge was not on the small islands of the Mangrove group. Weather was not quite what it should have been and after a couple of rough days and nights it was the popular consensus that the island be renamed: Geo-metric island because everything finished up on an angle. The antenna pole was at 45 degrees to the horizon, even the mast was at a horizontal plane. However, as the weather moderated, the boys were able to adjourn to neighbouring islands for a good look at the marine biology, bird life, etc. Fish were in abundant supply and the group certainly did themselves proud as far as meals were concerned. In fact they were well catered for in every respect as their number included two medical men, a priest, a crayboat skipper and a few others. The boys were well equipped. Doc reported that conditions from a Ham Radio point of view were ideal.

The public bug recent to be biting a number of our Hams, Bernie 6KJ and Son Kim (a communications engineering student) also took themselves off to the islands. I am assured a good deal of the State from home QTH at Albany to Carnarvon and the Murchison River.

Aldred with a dale signal on 40 mhz a.m. from various country centres was a visitor from VK3 land. Welcome to VK6, Bob 3AH! For some time now, Aldred has been coming to Bob's caravan and rig, however he seems to have overcome most of the difficulties associated and still find time for a spot of Ham Radio.

Lionel 6LM, who I recently reported as being on long service leave, has put his time to good use, having bought a new antenna, meter, two-tube phasing type rig, and a helical whip as well as checking his portable equipment.

Paid a visit to Waroona the other day and caught Bob 6RG red-handed, right in the act of—well, I don't know, but he was caught to bits, or as he termed it, a necessary modification. Spent a couple of very pleasant hours yarning with Bob and learning quite a lot in the process.

Bill 6WV tells me that Yanks are still plentiful on 20 mhz. His X beam seems to be functioning well despite its proximity to the air and its devastating effects. Incidentally, Bill has been firing up an old No. 19 on 40 mhz from the coast.

Heard Brian 6VW recently giving voice on some piece of portable gear acquired from one of the Division's disposal sales. I fearly recall the "outsource" Special.

Another of my spies received instant promotion to the rank of Major, and has been starting item of news that one of our leading s.w. listeners, Peter Drew, has won the lottery and is now on his way to Europe for a couple of years. Good luck, Peter, and I hope the experience will be beneficial to you. I understand that rather than let his receiver take a swelter, Peter has decided to let another very keen s.w.l. in Harry Price, for the duration." Judging by the number of stations that are using the R.D. Contest, its loan was fully justified.

Another who apparently could not resist the lure of the R.D. Contest was Geoff STY. Nice to see you at our meeting OM, hope that your stay in VK6 was a pleasant one.

On the security news reader, Bob 6BE, reports that the new broadcast band has good coverage, and who can deny this when, after a recent broadcast on 20 mhz, Bob called for reports.

Once again the R.D. Contest brought to light some of the well-known forgotten call signs, but to my regret, I am not mentioning them by name, I will not mention them by name—unless they forget to submit a log. It appears to me that once again there were some stations that were not mentioned, and not all by sideband stations either! I wonder which State will run out winners on this trip. I don't know, but I hope the man put it to me shortly before the thing

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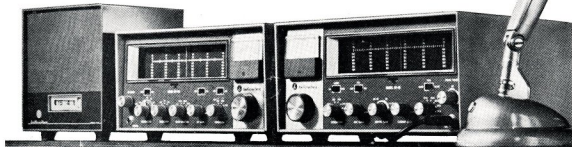
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This is an Amateur band receiver of advanced design employing a single conversion signal path and pre-mixed oscillator chain to assure high order frequency stability and freedom from adjacent channel cross-modulation products. The SX-146 employs a high frequency quartz crystal filter and has provision for installation of two more crystal filters. The receiver may also be used from 2 to 30 Mc., with the exception of a narrow gap at 9.0 Mc., with the connection of auxiliary oscillators. The highly stable conversion oscillator chain may be used for transceiver operation of matching HT-46 transmitter.

FREQUENCY BANDS: 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5, 28.0-28.05, 28.5-29.0, 29.0-29.5, 29.5-30.0 Mc. (28.0 to 28.5, 29.0 to 30.0 requires extra crystals at user's option.)

SENSITIVITY: Better than 1 μ V. for 20 db. S/N.

TUBES AND FUNCTIONS: 6JD6 r.f. amplifier; 12AT7 signal mixer and cathode follower; (2) 6AU6A 9 Mc. i.f. amplifier; 12AT7 a.m. detector—a.v.c. rectifier—product detector; 12AT7 u.s.b.-l.s.b. crystal oscillators; 6GW8 audio amplifier and audio output; 6BA6 variable frequency oscillator; 6EA8 crystal heterodyne oscillator and pre-mixer; plus diode power supply rectifier, a.n.l. diode and a.v.c. gates diode; *6AU6A 100 kc. crystal calibrator oscillator; *harmonic generator diode.

I.F. SELECTIVITY: Uses a 6-pole crystal filter to obtain a nose-to-skirt ratio better than 1 to 1.8.

PHYSICAL DATA: Size, 5 $\frac{1}{2}$ x 13 $\frac{1}{2}$ x 11 inches. Shipping weight, 20 lbs.

FRONT PANEL CONTROLS: Frequency—Power off, c.w.-upper-lower and a.m.; audio gain; band selector—3.5, 7.0, 14, 21.0, 28.0, 28.5, 29.0, 29.5; selectivity—0.5, 2.1, 5.0 kc. +0.5 and 5.0 kc. filters optional extra; pre-selector; r.f. gain; a.v.c. on-off; cal. on-off; a.n.l. on-off; phone set jack; Smiler.

REAR CHASSIS: S-meter zero adjust; internal-external oscillator switch slave oscillator output; external oscillator input; antenna socket; speaker, ground and mute terminals; grounding stud; a.c. power cord.

POWER REQUIREMENTS: 105/125 volt—50/60 cycle a.c.—55 watts.
* Part of HA-19 calibrator.

Amateur net, \$450.00

Optional crystal filters: 0.5 kc., 5.0 kc., available.

MODEL HA-19 plug-in 100 kc. quartz calibrator available as accessory.

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All new from the ground up! Here's the "new breed" transmitter that matches your SX-146 . . . works independently or may be interconnected for transceiver operation.

FEATURES: 180 watts p.e.p. input on s.s.b.; 150 watts on c.w.; frequency control independent or slaved to SX-146 receiver; upper or lower sideband via 9 Mc. quartz filter; built-in power supply; press-to-talk or optional plug-in v.o.x.; grid block keying for c.w.

FREQUENCY COVERAGE: 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5 Mc. and 28-30 Mc. in four 500-kc. steps. Crystal supplied for 28.5-29.0 Mc. coverage. Other plug-in crystals at user's option.

TUBES: 6BA6 v.f.o.; 6EA8 heterodyne crystal oscillator and mixer; 12AT7 carrier oscillator-third audio; 12AT7 mc. amplifier; 6EA8 9 Mc. i.f. amplifier and a.a.l.c.; 6AH6 mixer; 12BY7 driver; 6HF5 power amplifier; OA2 reg.

FRONT PANEL CONTROLS: Frequency tuning; operation-off; standby, u.s.b., l.s.b., c.w.-tune, standby l.s.b., u.s.b.; microphone gain; driver tune; carrier level; band selector; final tune; v.f.o. selector—transmitter-receiver; dial cal.; calibrate on-off; meter MA-RFO.

REAR APRON FUNCTIONS: A.c. cord; ground lug; fuse; key jack; v.o.x. accessory socket; antenna jack; receiver input (for transceiver); 11-pin control socket; bias adjust.

PHYSICAL DATA: Size, 5 $\frac{1}{2}$ x 13 $\frac{1}{2}$ x 11 inches. Shipping weight, 20 $\frac{1}{2}$ lbs.

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